Pioneer sound.vision.soul

Service Manual

DVR-640H-S

ORDER NO.
RRV3376

DVD RECORDER

DVR-640H-S
DVR-543H-S
DVR-540H-S

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Region No.	Serial No. Please confirm 3rd & 4th alphabetical letters.
DVR-640H-S	KUCXV	AC120 V	1	&&DL######$$
DVR-543H-S	KUCXV	AC120 V	1	&&DL######$$
DVR-540H-S	KUCXV	AC120 V	1	&&DL######$$

- **When servicing this model, some service procedures may reset the customer settings to the factory default settings. Make sure to explain this to the customer.**

An HDD (Hard Disc Drive) is mounted in this product.
The HDD is a precision instrument very vulnerable to shock and electrostatic charges. Please read "7.3 Cautions on Handling the HDD" in this manual and exercise sufficient caution when handling the HDD itself, as well as the product with the HDD built in.
When an HDD becomes defective and inoperable, restoration of the user's data recorded on the HDD, or copying of the user's recorded data to other media (such as a new HDD) is totally impossible. Before servicing, OBTAIN THE USER'S PRIOR CONSENT to that effect.
The user must be made aware that all recorded data are deleted if the HDD is intialized.

For details, refer to "Important Check Points for Good Servicing" .

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PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936

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SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65

NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

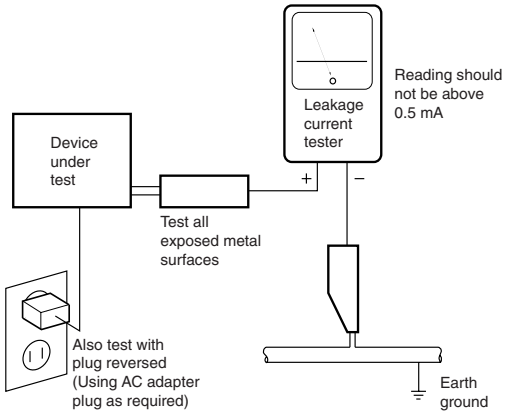
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

■ LABEL CHECK

IMPORTANT

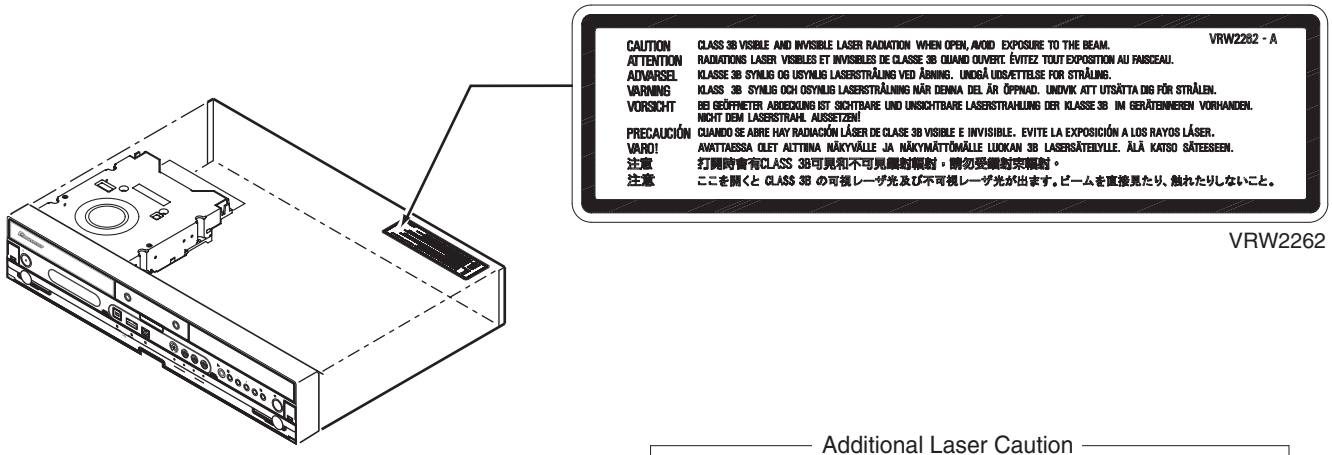
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER: 100 mW
WAVELENGTH: 654nm to 662 nm

LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER: 5 mW
WAVELENGTH: 770nm to 810 nm



VRW2262

Additional Laser Caution

1. The ON/OFF(ON:low level,OFF:high level) status of the CLAMP signals for detecting the loading state are detected by the drive CPUs, and the design prevents laser diode oscillation when the CLAMP signal turns OFF.
   In normal operation, if no disc is clamped, the laser diode oscillation is disabled.
   However, the interlock does not always operate in the test mode.

2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 3A laser beam.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

CONTENTS

1. SPECIFICATIONS

● Specifications

General

Power requirements . . . . . 120 V, 60 Hz
Power consumption . . . . . 37 W
Power consumption in standby mode . . . . . 0.29 W
(Front panel display : off)
Weight
DVR-640H-S/DVR-543H-S . . . . . 4.3 kg (9 lb. 8 oz.)
DVR-540H-S . . . . . 4.2 kg (9 lb. 5 oz.)
Dimensions . . . . . 420 mm (W) x 69 mm (H) x 318 mm (D)
(16 9/16 in. (W) x 2 3/4 in. (H) 12 9/16 in. (D))
Operating temperature . . . . . +5 °C to +35 °C
(+41 °F to +95 °F)
Operating humidity . . . . . 5 % to 85 %
(no condensation)
TV system . . . . . NTSC

Readable discs
DVD-Video, DVD-RW, DVD-R, DVD+R, DVD+RW,DVD-RAM,
Video CD, CD, CD-R/-RW (WMA, MP3, JPEG, CD-DA)

Recording discs and formats
DVD-R/-RW : VR mode and Video mode
DVD+R/+RW : +VR mode
DVD-RAM : VR mode
DVD-R DL : VR mode and Video mode
DVD+R DL : +VR mode

Video recording format
Sampling frequency . . . . . 13.5 MHz
Compression format . . . . . MPEG
Audio recording format
Sampling frequency . . . . . 48 kHz
Compression format . . . . . Dolby Digital or Linear PCM
(uncompressed)

Recording time

HDD
DVR-640H-S (160 GB)
Fine (XP) . . . . . Approx. 34 h
Standard Play (SP) . . . . . Approx. 68 h
Long Play (LP) . . . . . Approx. 136 h
Extended Play (EP) . . . . . Approx. 204 h
Super Long Play (SLP) . . . . . Approx. 272 h
Super Extended Play (SEP) . . . . . Approx. 340 h
Manual Mode (MN) . . . . . Approx. 34 h to 455 h

DVR-543/540H-S (80 GB)
Fine (XP) . . . . . Approx. 17 h
Standard Play (SP) . . . . . Approx. 34 h
Long Play (LP) . . . . . Approx. 68 h
Extended Play (EP) . . . . . Approx. 102 h
Super Long Play (SLP) . . . . . Approx. 136 h
Super Extended Play (SEP) . . . . . Approx. 170 h
Manual Mode (MN) . . . . . Approx. 17 h to 227 h

DVD-R/-RW, DVD+R/+RW, DVD-RAM
Fine (XP) . . . . . Approx. 1 h
Standard Play (SP) . . . . . Approx. 2 h
Long Play (LP) . . . . . Approx. 4 h
Extended Play (EP) . . . . . Approx. 6 h
Super Long Play (SLP) . . . . . Approx. 8 h
Super Extended Play (SEP) . . . . . Approx. 10 h
(DVD-R/-RW, DVD-RAM only)
Manual Mode (MN)
DVD-R/-RW/-RAM . . . . . Approx. 1 h to 13 h
DVD+R/+RW . . . . . Approx. 1 h to 8 h

DVD-R DL/DVD+R DL
Fine (XP) . . . . . Approx. 1 h 51 m
Standard Play (SP) . . . . . Approx. 3 h 35 m
Long Play (LP) . . . . . Approx. 7 h 11 m
Extended Play (EP) . . . . . Approx. 10 h 46 m
Super Long Play (SLP) . . . . . Approx. 14 h 21 m
Super Extended Play (SEP) . . . . . Approx. 17 h 57 m
(DVD-R DL only)
Manual Mode (MN)
DVD-R DL . . . . . Approx. 1 h 51 m to 24 h
DVD+R DL . . . . . Approx. 1 h 51 m to 14 h 21 m

Tuner

Receivable channels
VHF . . . . . 2 ch to 13 ch
UHF . . . . . 14 ch to 69 ch
CATV . . . . . C1 ch to C125 ch

Timer

Programs . . . . . 1 month/32 programs
Clock . . . . . Quartz lock (12-hour digital display)

Input/Output

VHF/UHF antenna input/output terminal VHF/UHF set
75Ω (F-shape connector)
Video input . . . . . Input 1,3 (rear), 2 (front)
Input level . . . . . 1 Vp-p (75 Ω)
Jacks . . . . . RCA jack
Video output . . . . . Output 1,2
Output level . . . . . 1 Vp-p (75 Ω)
Jacks . . . . . RCA jack
S-Video input . . . . . Input 1, 3 (rear), 2 (front)
Y (luminance) - Input level . . . . . 1 Vp-p (75 Ω)
C (color) - Input level . . . . . 286 mVp-p (75 Ω)
Jacks . . . . . 4 pin mini DIN
S-Video output . . . . . Output 1,2
Y (luminance) - Output level . . . . . 1 Vp-p (75 Ω)
C (color) - Output level . . . . . 286 mVp-p (75 Ω)
Jacks . . . . . 4 pin mini DIN
Component video output
Output level . . . . . Y: 1.0 Vp-p (75 Ω)
P_B, P_R : 0.7 Vp-p (75 Ω)
Jacks . . . . . RCA jacks
Audio input . . . . . Input 1, 3 (rear), 2 (front) L/R
Input level
During audio input . . . . . 2V rms
(Input impedance : more than 22 kΩ)
Jacks . . . . . RCA jacks
Audio output . . . . . Output 1,2 L/R
During audio output . . . . . 2V rms
(Output impedance : less than 1.5 kΩ)
Jacks . . . . . RCA jacks
Control input . . . . . Mini jack
Digital audio output . . . . . Coaxial
USB . . . . . Type A (front), Type B (front)
(DVR-640H-S/DVR-543H-S only)

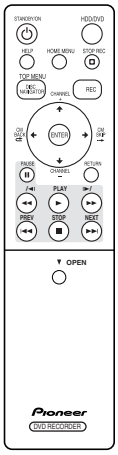
Supplied accessories

Remote control 1
Dry cell batteries (AA/R6P) 2
Audio / Video cable (red/white/yellow) 1
RF antenna cable 1
Power cable 1
Quick start guide
Operating Instructions
Warranty card 1

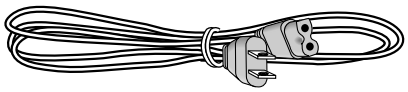
Note : The specifications and design of this product are subject to change without notice, due to improvement.

● Accessories

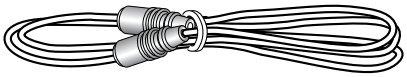
• Remote control ×1
(VXX3095)



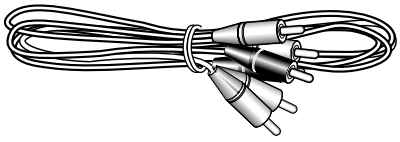
• Power cable ×1
(ADG7021)



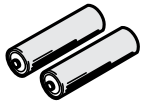
• RF antenna cable(NTSC) ×1
(VDE1088)



• Audio / Video cable(1.5m) ×1
(red/white/yellow)
(VDE1077)



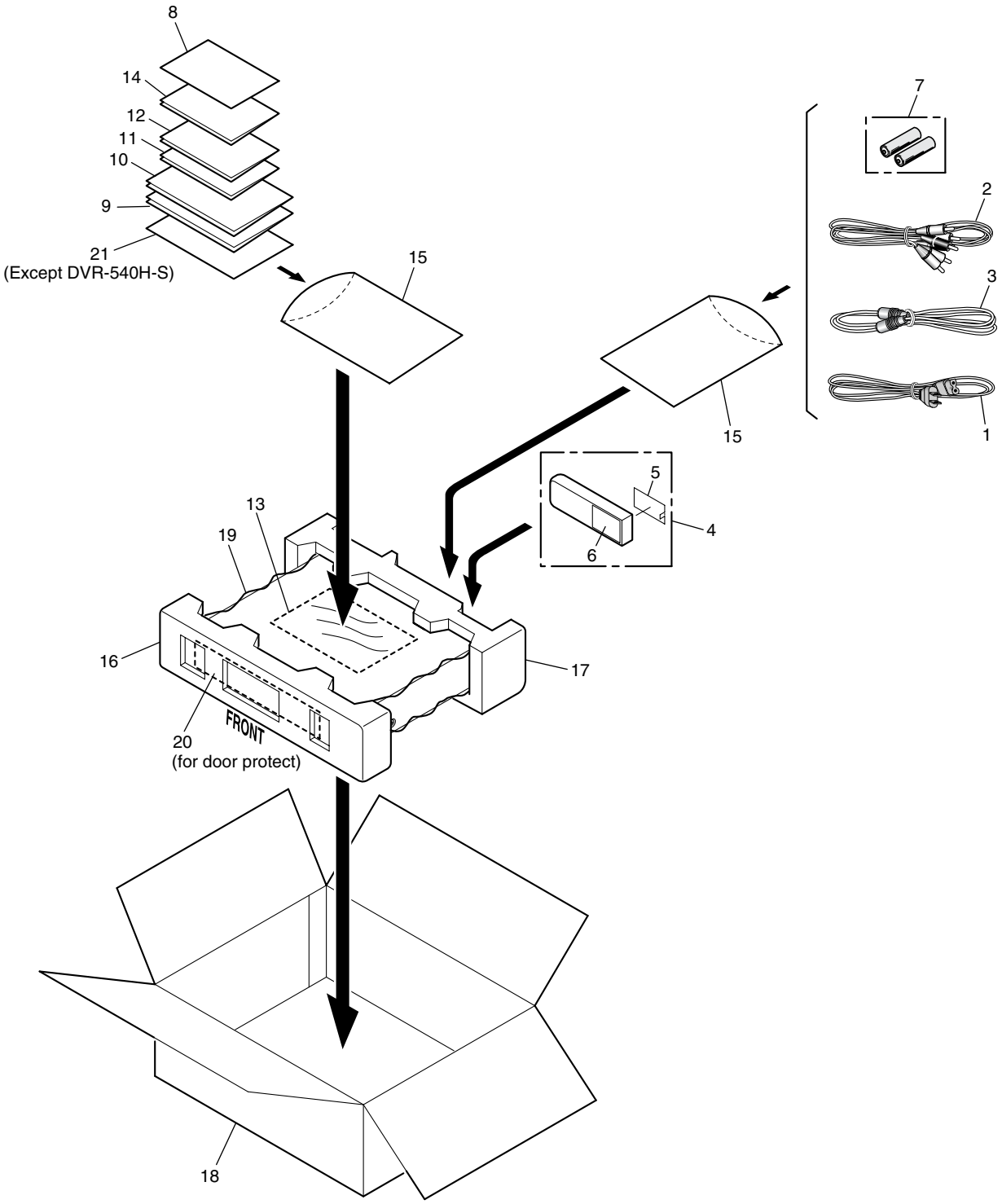
• Dry cell batteries ×2
(AA/R6P)



2. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

2.1 PACKING



(1) PACKING SECTION PARTS LIST

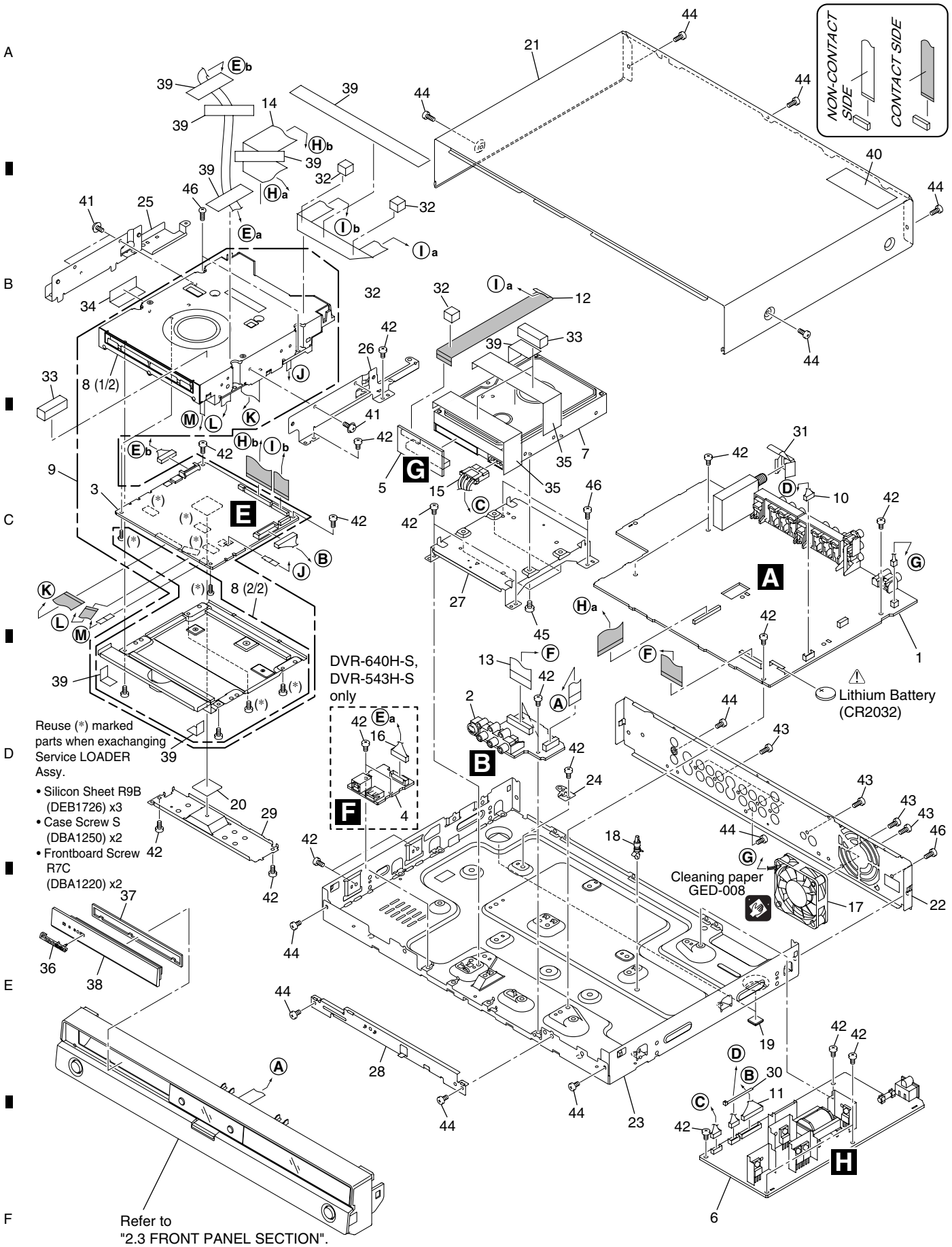
Mark	No.	Description	Part No.
⚠	1	Power Cord	ADG7021
	2	Audio/Video Cable (1.5m)	VDE1077
	3	RF Antenna Cable	VDE1088
	4	Remote Control Unit	VXX3095
	5	Battery Cover	VZN1004
	6	Top Cover	VZN1012
NSP	7	Dry Cell Battery (R6P, AA)	VEM1010
NSP	8	Warranty Card	ARY7045
	9	Operating Instructions (English)	VRB1412
	10	Operating Instructions (French)	VRC1318
	11	Quick Start Guide	VRG1014
	12	Quick Start Guide	VRL1012
	13	HDD Caution 8L B	VRR1062
	14	HDD Caution 8L	VRR1063
	15	Polyethylene Bag B5	VHL1088
	16	Front Pad	VHA1415
	17	Rear Pad	VHA1416
	18	Packing Case	See Contrast table (2)
	19	Mirror Sheet	VHL1095
	20	Mirror Sheet	VHL1104
NSP	21	Caution	See Contrast table (2)

(2) CONTRAST TABLE

DVR-640H-S/KUCXV, DVR-543H-S/KUCXV and DVR-540H-S/KUCXV are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-640H-S/KUCXV	DVR-543H-S/KUCXV	DVR-540H-S/KUCXV
	18	Packing Case	VHG2728	VHG2727	VHG2726
NSP	21	Caution	VRN1014	VRN1014	Not used

2.2 EXTERIOR SECTION



(1) EXTERIOR SECTION PARTS LIST

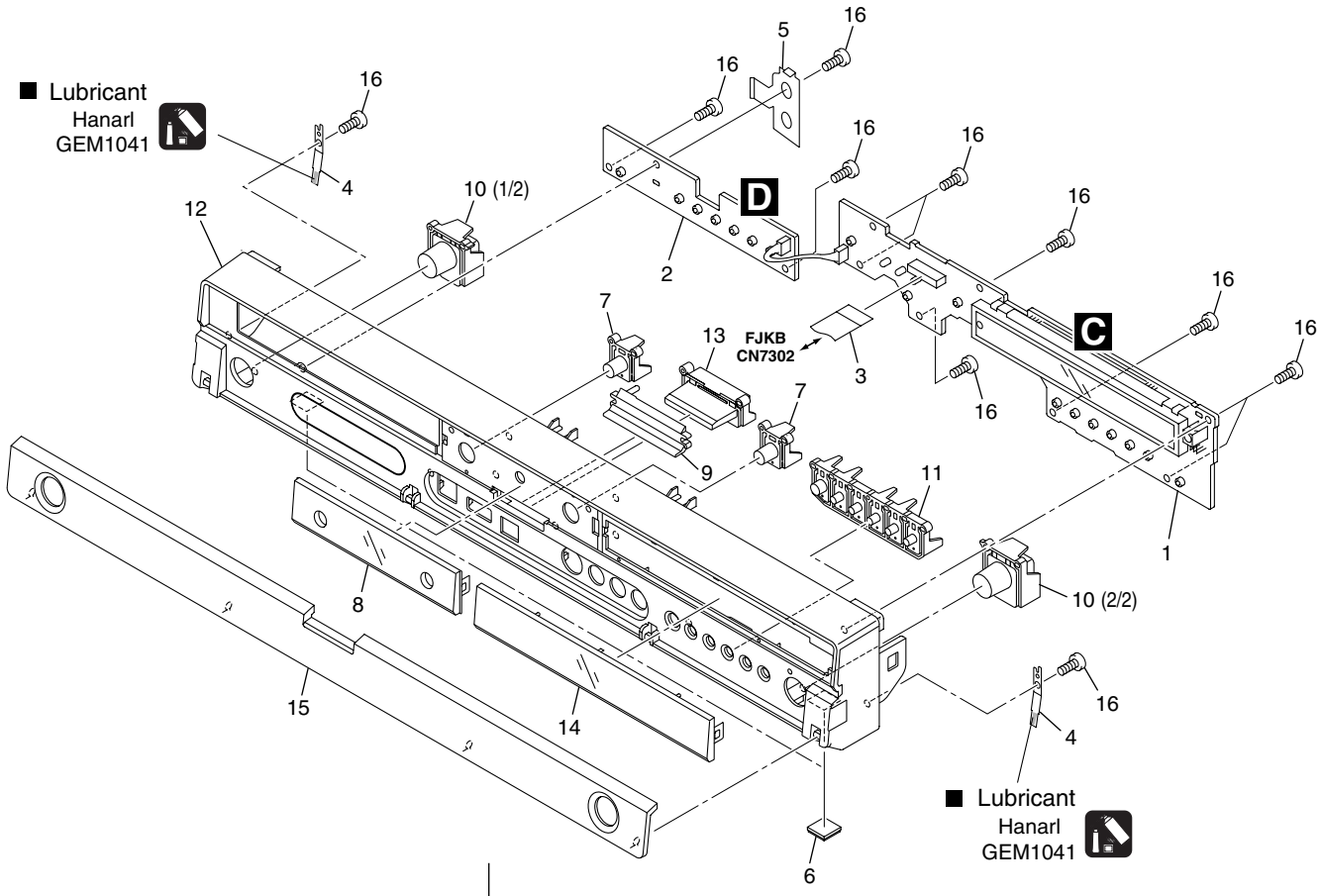
Mark	No.	Description	Part No.
	1	TUJB Assy (for service)	VXX3146
	2	FJKB Assy (for service)	VXX3113
	3	MAIN Assy (for service)	See Contrast table (2)
	4	USBB Assy	See Contrast table (2)
	5	ATAB Assy (for service)	VXX3140
⚠	6	POWER SUPPLY Unit	VWR1401
	7	HDD	See Contrast table (2)
	8	LOADER Assy (for service)	VXX3156
NSP	9	Service LOADER MAIN	See Contrast table (2)
	10	Connector Assy	PF05PP-S07
	11	Connector Assy	PF13PP-S22
	12	Flexible Cable 40P	VDA2112
	13	Flexible Cable 23P	VDA2113
	14	Flexible Cable 35P	VDA2114
	15	Housing Assy 4P	VKP2357
	16	Housing USB (MAIN)	See Contrast table (2)
	17	DC Fan Motor 60	VXM1125
	18	PCB Support	AEC1215
	19	Rubber Foot	VEB1349
	20	Radiation Sheet (Silicone)	VEB1360
	21	Bonnet S	VXX3105
	22	Rear Panel	See Contrast table (2)
NSP	23	Chassis	VNB1055
NSP	24	PCB Base	VNE2378
NSP	25	Writer Stay L	VNE2421
NSP	26	Writer Stay R	VNE2422
NSP	27	HDD Stay	VNE2423
NSP	28	Bridge	VNE2429
	29	Heatsink	VNH1077
NSP	30	Binder (BK-1)	ZCA-BK1
	31	Earth Plate TU	VBK1162
	32	Rubber Spacer C	VEB1389
	33	Gasket 30 x 10T	VEC2522
	34	Aluminum Tape 25 x 25	VEF1060
	35	Aluminum Tape 180 x 25	VEF1065
	36	Pioneer Name Plate	VAM1148
	37	Tray Sheet	VEC2500
	38	Tray Panel	VNK5910
NSP	39	Tape	ZTA-156A-19
	40	Laser Caution Label	VRW2262
	41	Screw	AMZ30P040FTC
	42	Screw	BBZ30P060FTC
	43	Screw	BPZ30P080FTC
	44	Screw	BSZ30P040FTC
	45	#6-32 Screw	DBA1125
	46	Screw	PBZ30P080FTC

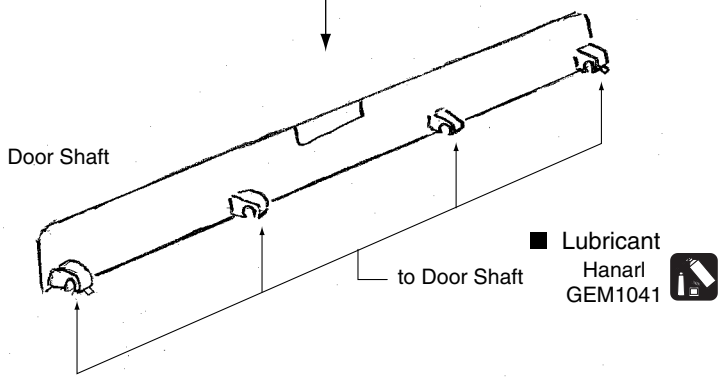
(2) CONTRAST TABLE

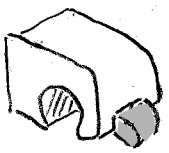
DVR-640H-S/KUCXV, DVR-543H-S/KUCXV and DVR-540H-S/KUCXV are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-640H-S/KUCXV	DVR-543H-S/KUCXV	DVR-540H-S/KUCXV
	3	MAIN Assy (for service)	VXX3157	VXX3157	VXX3159
	4	USBB Assy	VWV2161	VWV2161	Not used
	7	HDD 160G ST3160022RS	VXF1086	Not used	Not used
	7	HDD 80G WD800BBJKC S	Not used	VXF1066	VXF1066
NSP	9	Service LOADER MAIN	VXU1001	VXU1001	VXU1002
	16	Housing USB (MAIN)	VKP2380	VKP2380	Not used
	22	Rear Panel	VNA2908	VNA2907	VNA2870

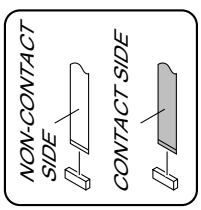
2.3 FRONT PANEL SECTION







Paste lubricant hanarl (GEM1041) to salient points of both side of the door.



(1) FRONT PANEL SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	FLKY Assy (for service)	VXX3111
	2	KEYB Assy (for service)	VXX3112
	3	Flexible Cable 12P	VDA2116
	4	Door Spring	VBK1159
	5	Earth Plate	VBK1166
	6	Rubber Foot	VEB1349
	7	Sub Key	VNK5909
	8	Center Cover	VNK5911
	9	LED Lens	VNK5913
	10	Main Key	See Contrast table (2)
	11	Function Key	VNK5936
	12	Front Panel	See Contrast table (2)
	13	Center Key	See Contrast table (2)
	14	FL Lens PTD	See Contrast table (2)
	15	Door PTD	See Contrast table (2)
	16	Screw	BPZ30P080FTC

(2) CONTRAST TABLE

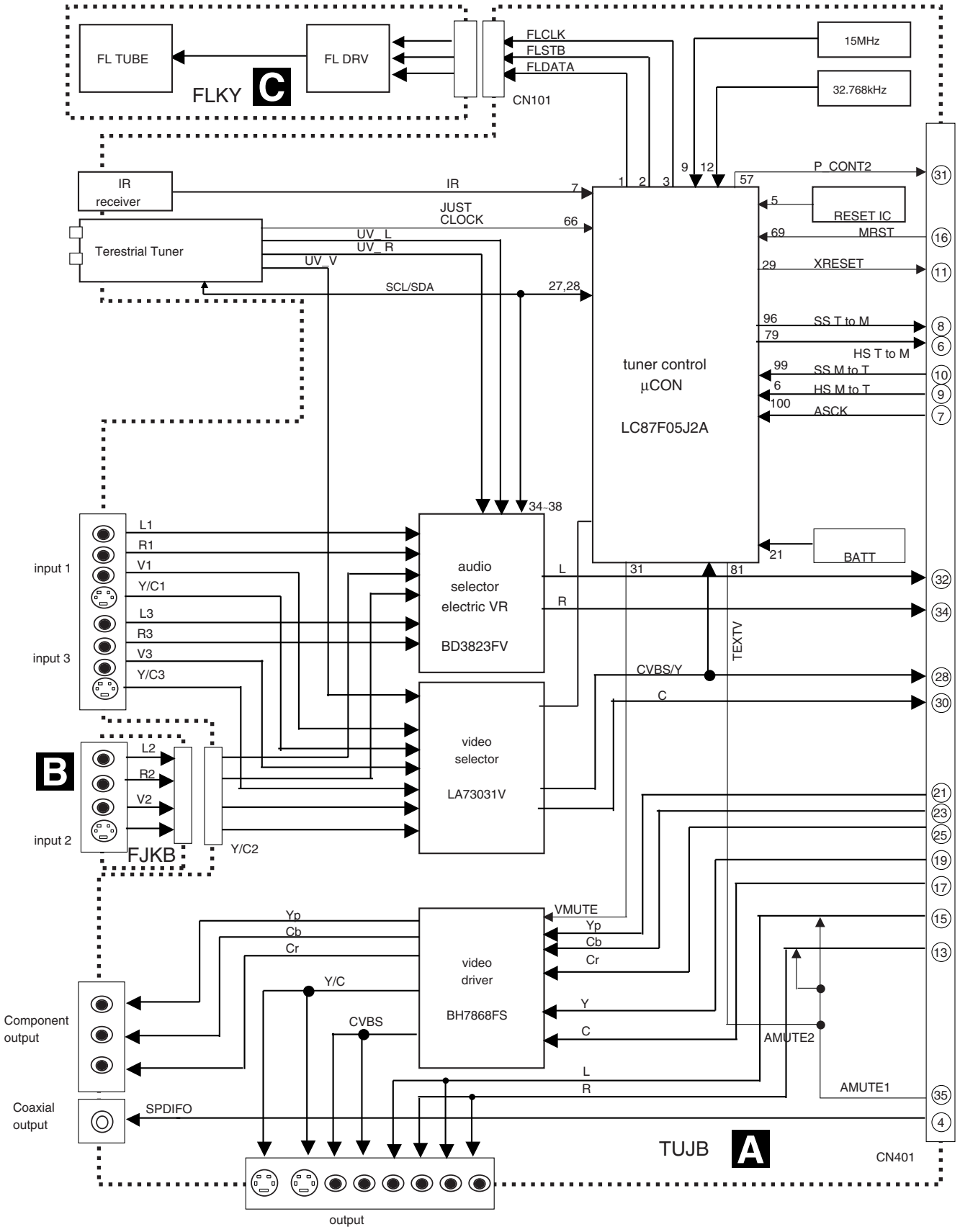
DVR-640H-S/KUCXV, DVR-543H-S/KUCXV and DVR-540H-S/KUCXV are constructed the same except for the following:

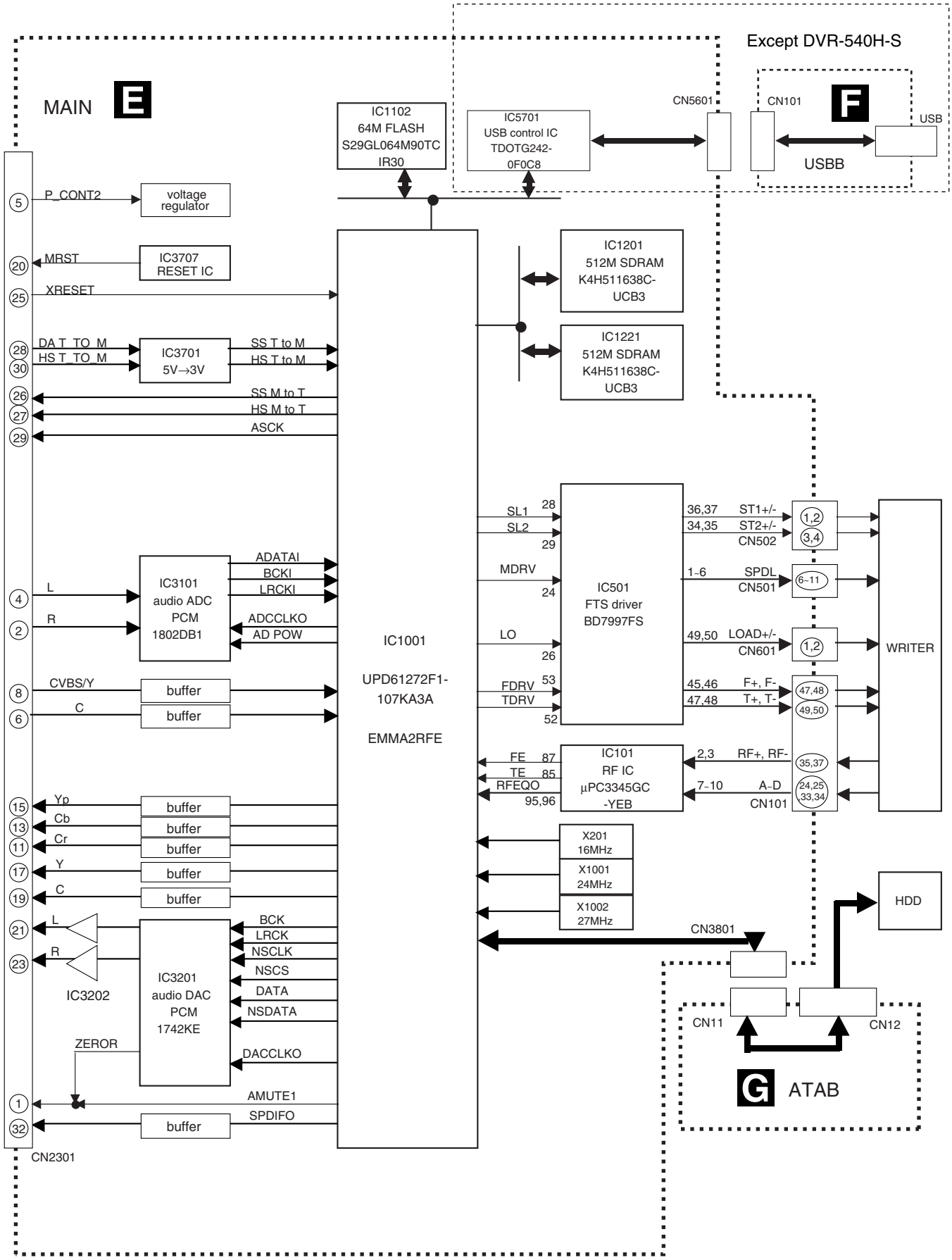
Mark	No.	Symbol and Description	DVR-640H-S/KUCXV	DVR-543H-S/KUCXV	DVR-540H-S/KUCXV
	10	Main Key	VNK6113	VNK6113	VNK5908
	12	Front Panel	VNK5978	VNK5978	VNK5966
	13	Center Key	VNK6114	VNK6114	VNK6025
	14	FL Lens PTD	VXA2741	VXA2801	VXA2740
	15	Door PTD	VXA2778	VXA2778	VXA2776

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

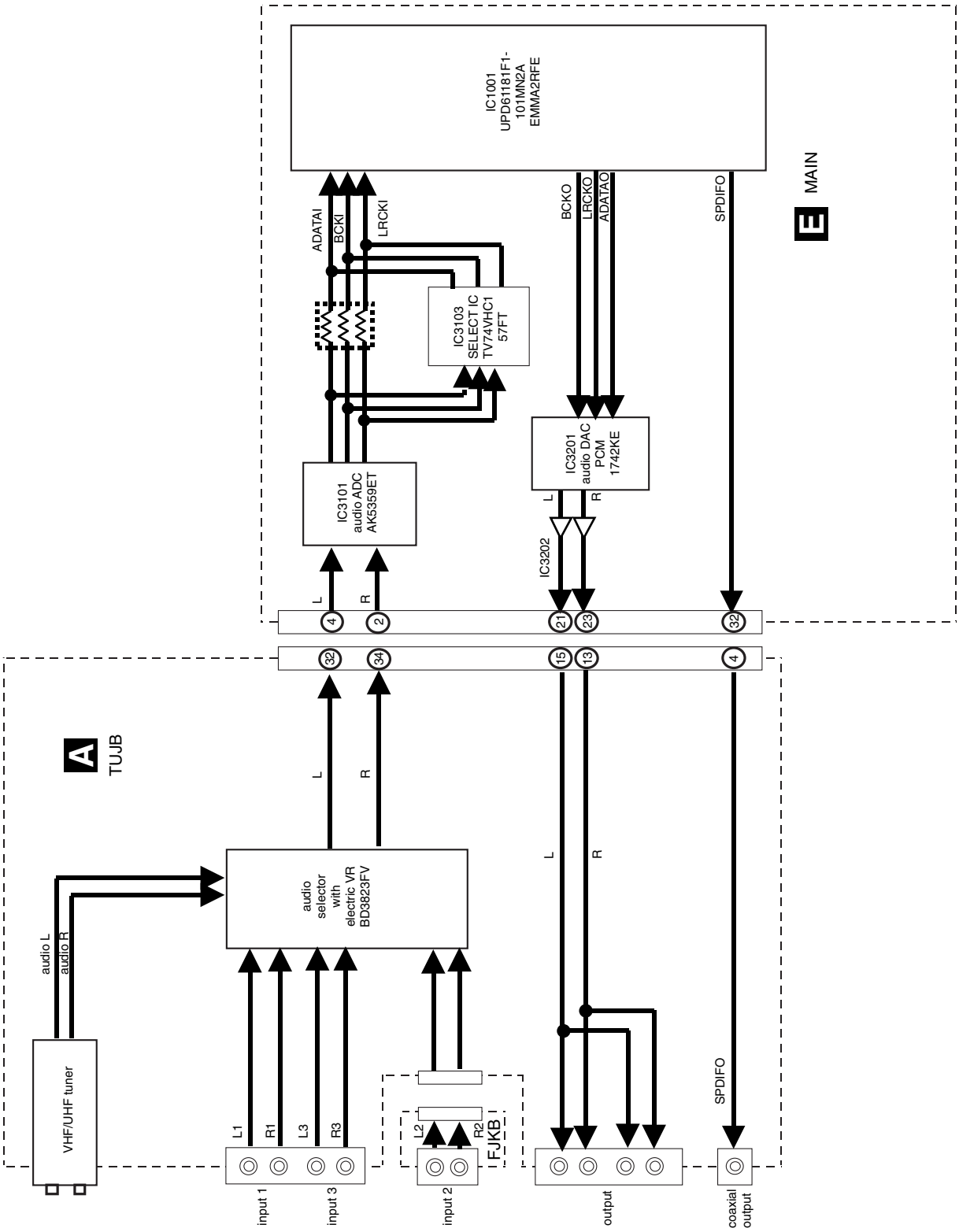
3.1 BLOCK DIAGRAM

3.1.1 OVERALL BLOCK DIAGRAM



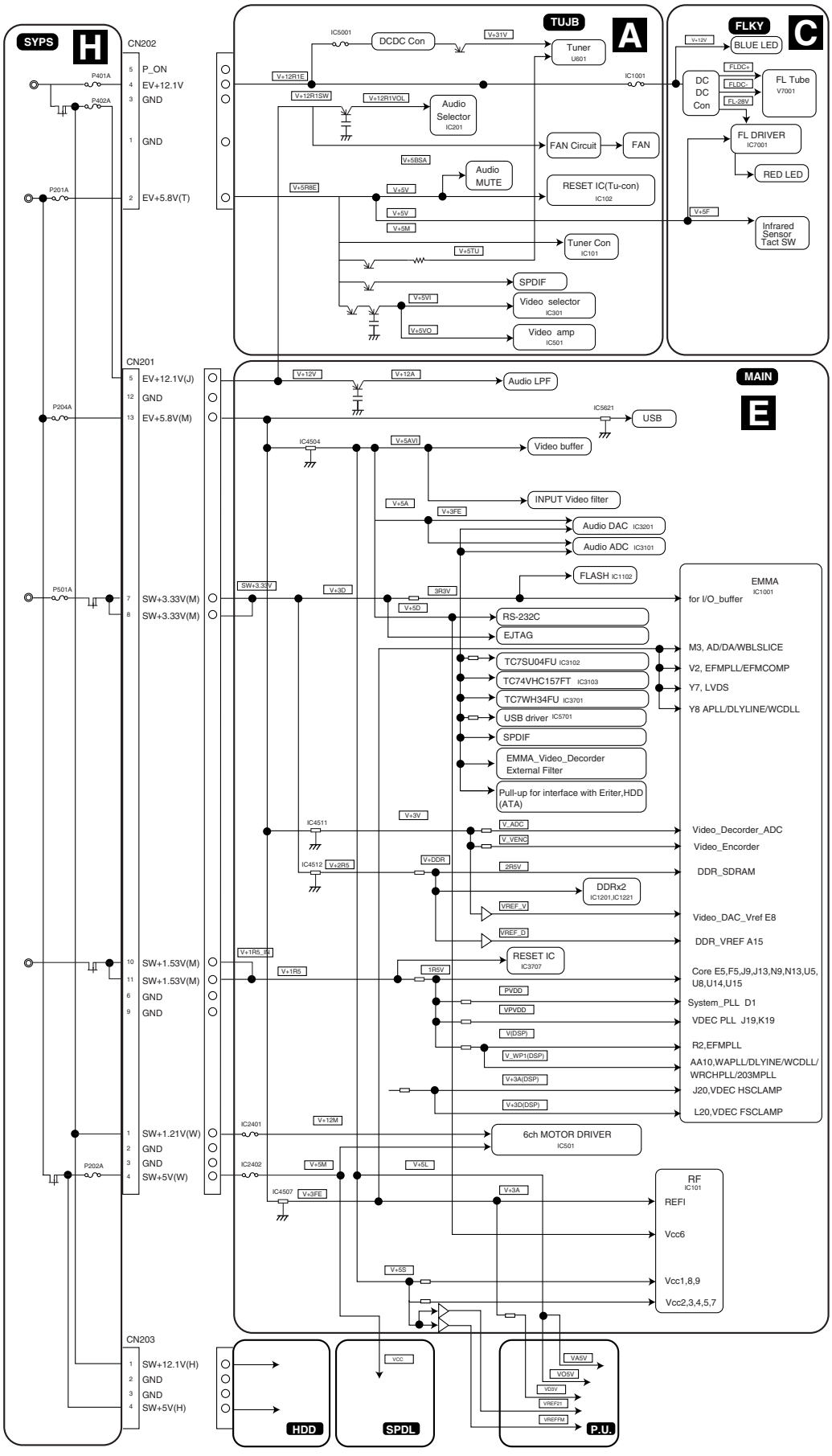

Except DVR-540H-S
MAIN
E
IC1102
64M FLASH
S29GL064M90TC
IR30
IC5701
USB control IC
TDOTG242-
0F0C8
CN5601
CN101
F
USB
USBB
P_CONT2
voltage
regulator
MRST
IC3707
RESET IC
XRESET
DA T_TO_M
HS T_TO_M
IC3701
5V→3V
SS T to M
HS T to M
SS M to T
HS M to T
ASCK
IC1201
512M SDRAM
K4H511638C-
UCB3
IC1221
512M SDRAM
K4H511638C-
UCB3
IC1001
UPD61272F1-
107KA3A
EMMA2RFE
ADATAI
BCKI
LRCKI
ADCCLKO
AD POW
IC3101
audio ADC
PCM
1802DB1
L
R
CVBS/Y
C
buffer
Yp
Cb
Cr
Y
C
buffer
IC501
FTS driver
BD7997FS
SL1
SL2
MDRV
LO
FDRV
TDRV
36,37
34,35
ST1+/-
ST2+/-
CN502
1-6
SPDL
CN501
49,50
LOAD+/-
CN601
45,46
47,48
F+, F-
T+, T-
WRITER
IC101
RF IC
µPC3345GC
-YEB
FE
TE
RFEQO
2,3
RF+, RF-
7-10
A-D
CN101
X201
16MHz
X1001
24MHz
X1002
27MHz
HDD
CN3801
CN11
CN12
G
ATAB
IC3202
IC3201
audio DAC
PCM
1742KE
BCK
LRCK
NSCLK
NSCS
DATA
NSDATA
ZEROR
DACCLKO
AMUTE1
SPDIFO
CN2301

3.1.2 AUDIO BLOCK DIAGRAM

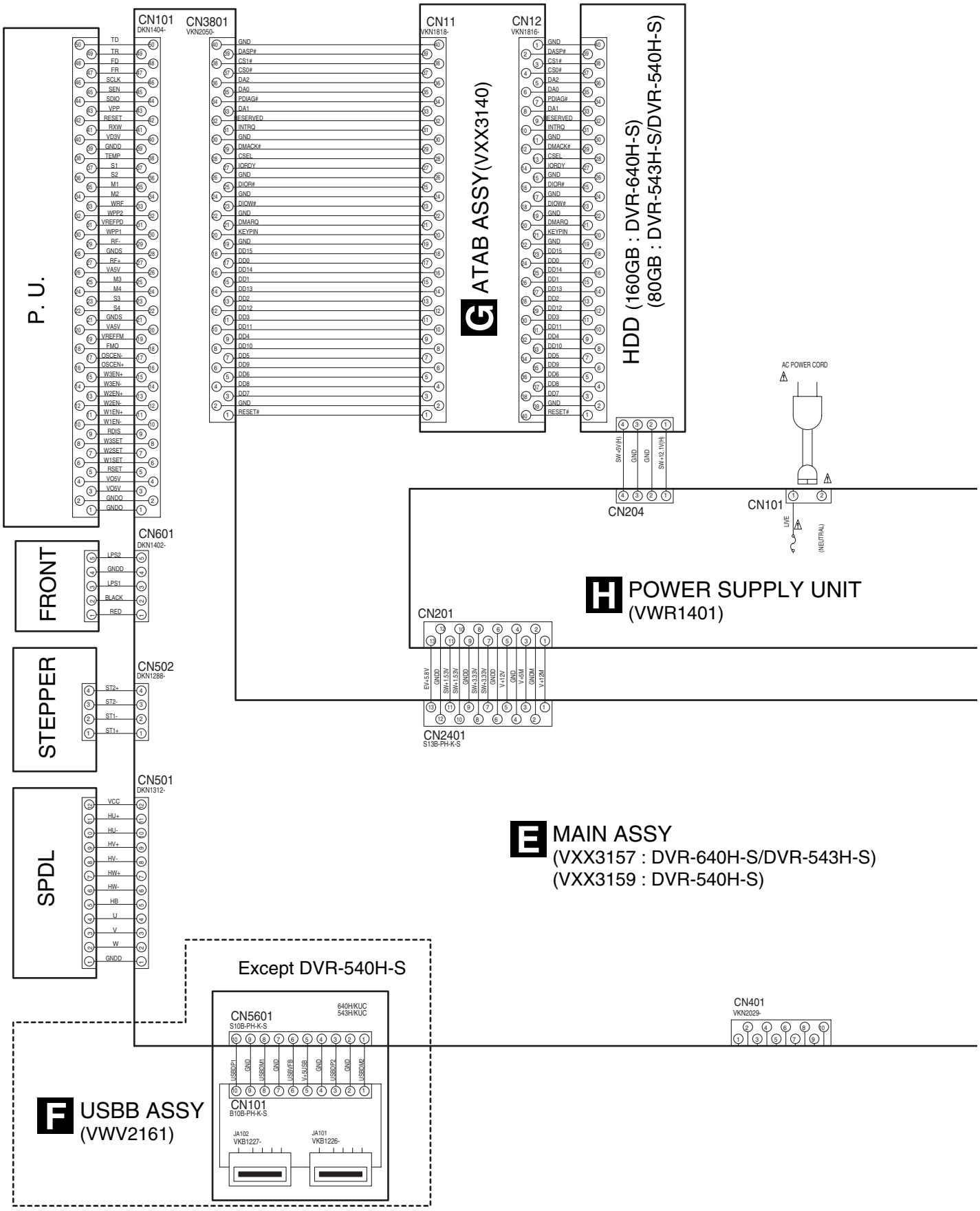


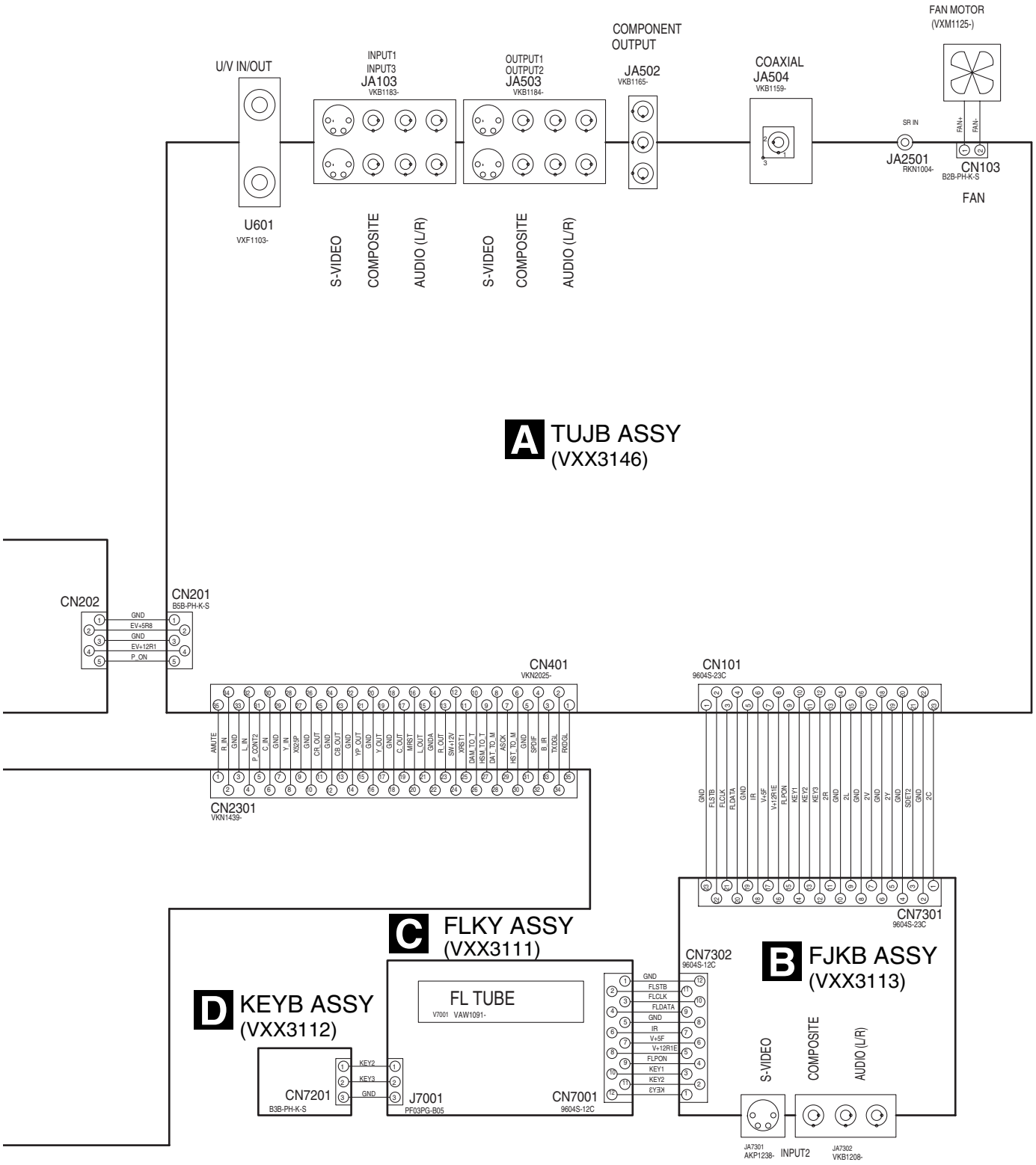
06DVR block diagram (Audio)

3.1.3 POWER BLOCK



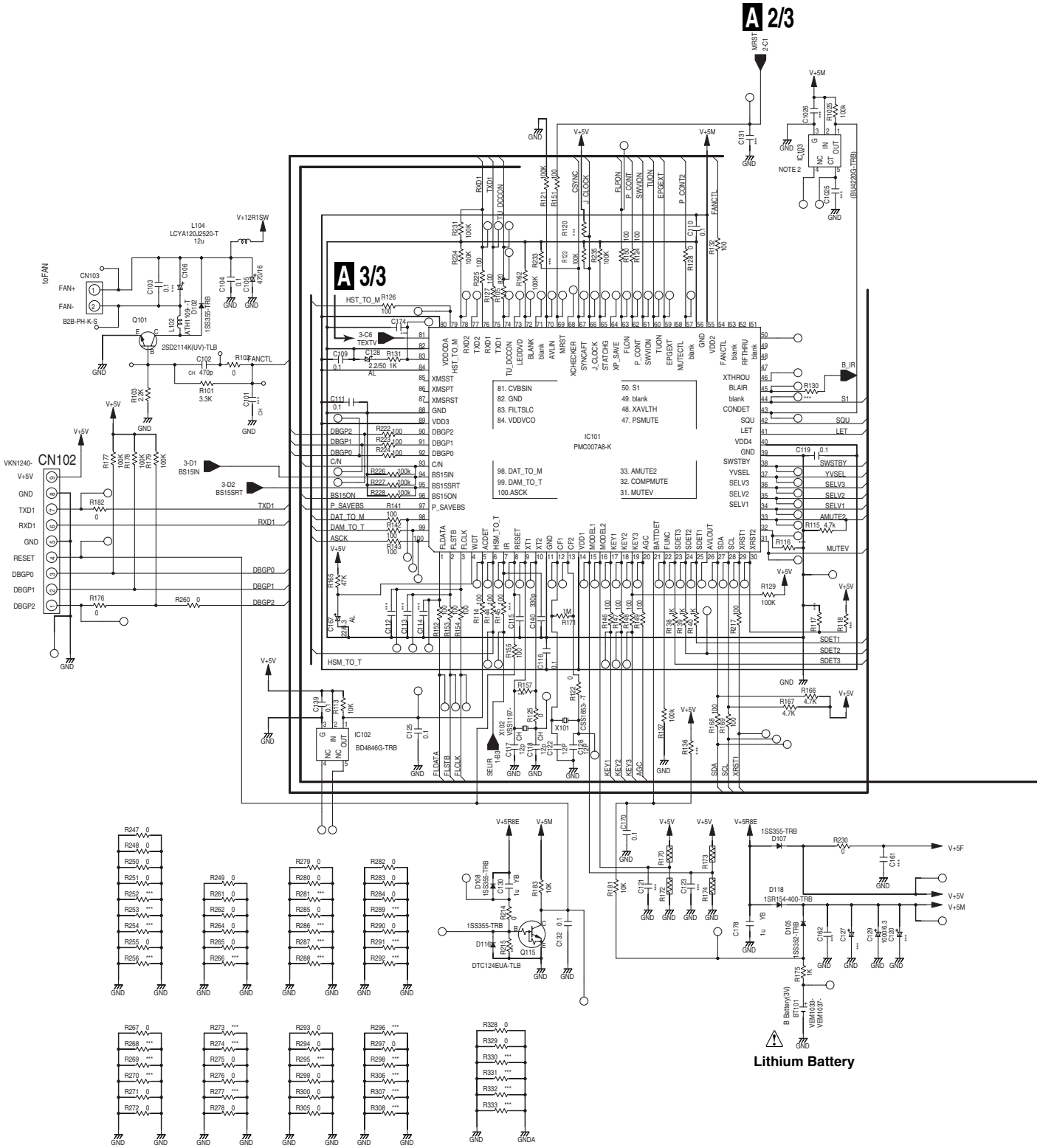
3.2 OVERALL WIRING DIAGRAM



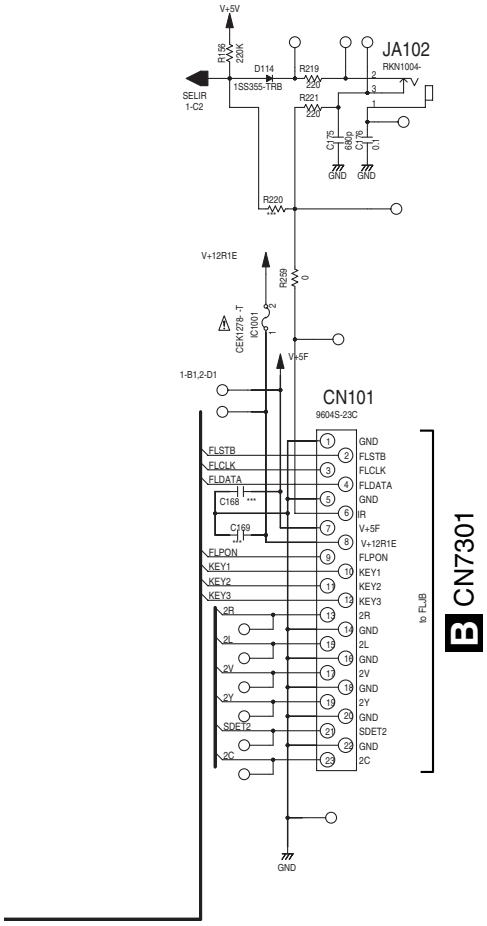


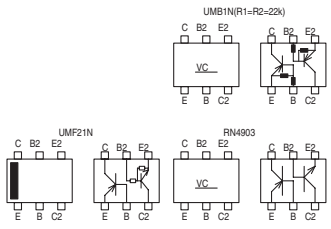
- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- : The power supply is shown with the marked box.

3.3 TUJB ASSY (1/3)

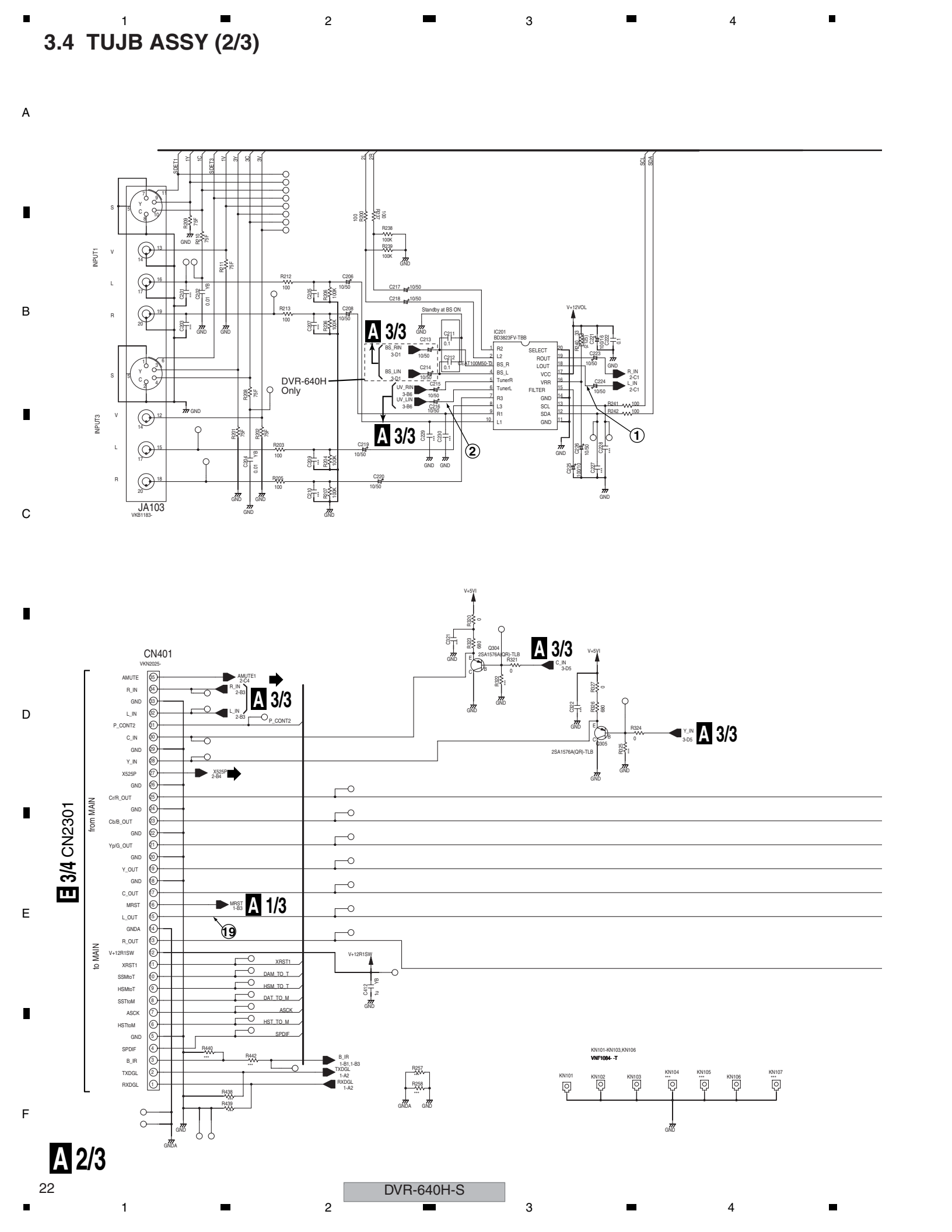


A 1/3 TUJB ASSY
(VXX3146)

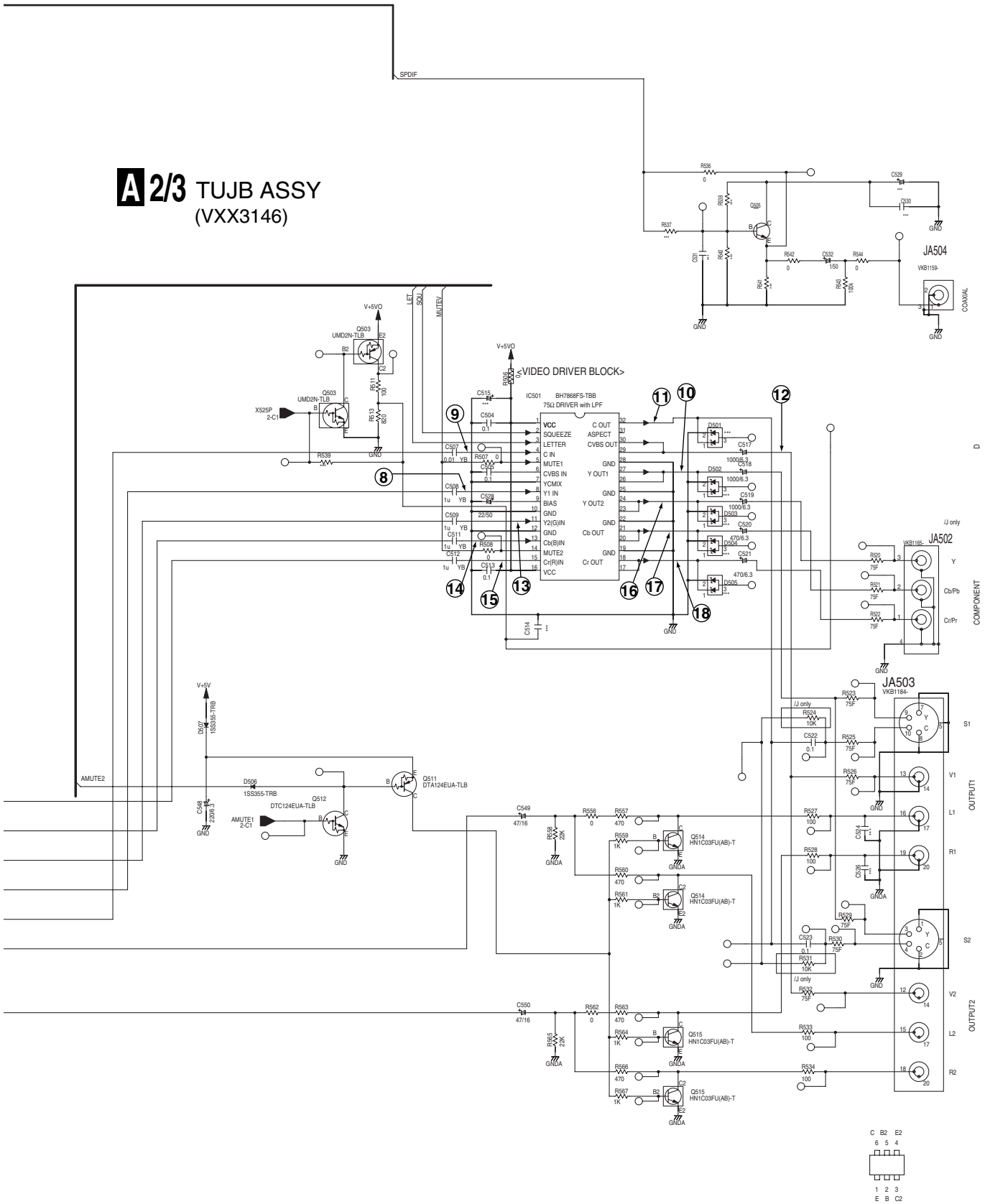




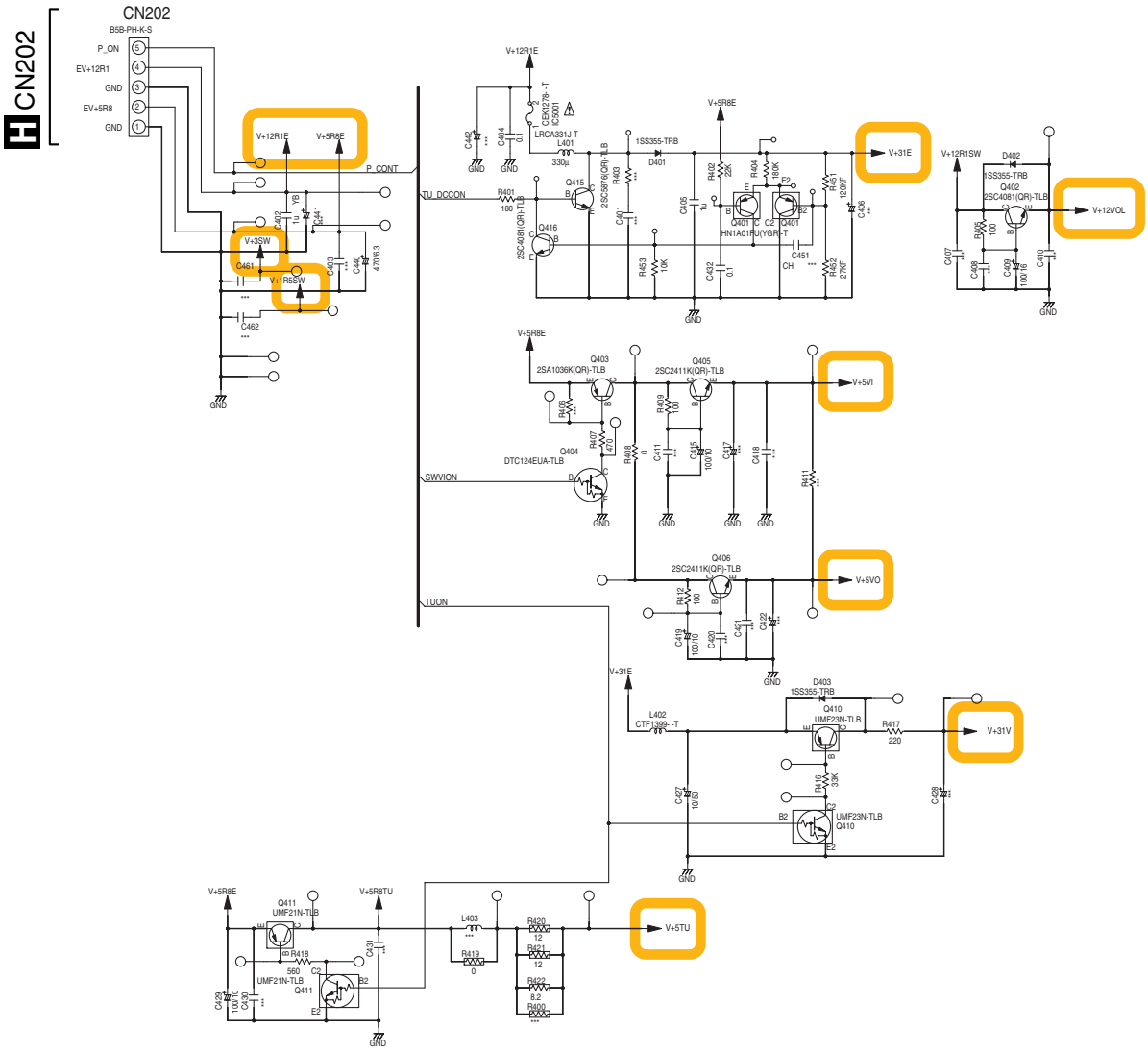
3.4 TUJB ASSY (2/3)



A 2/3 TUJB ASSY
(VXX3146)

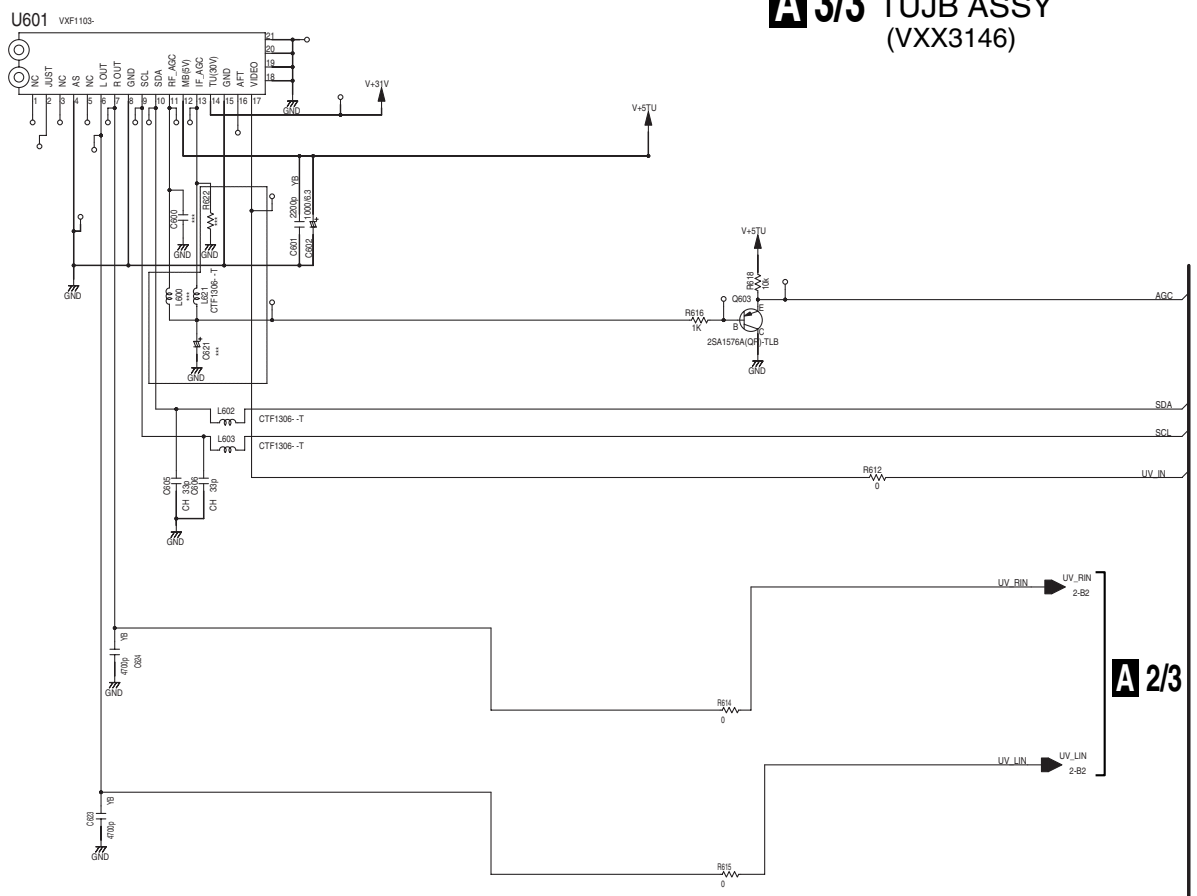


3.5 TUJB ASSY(3/3)

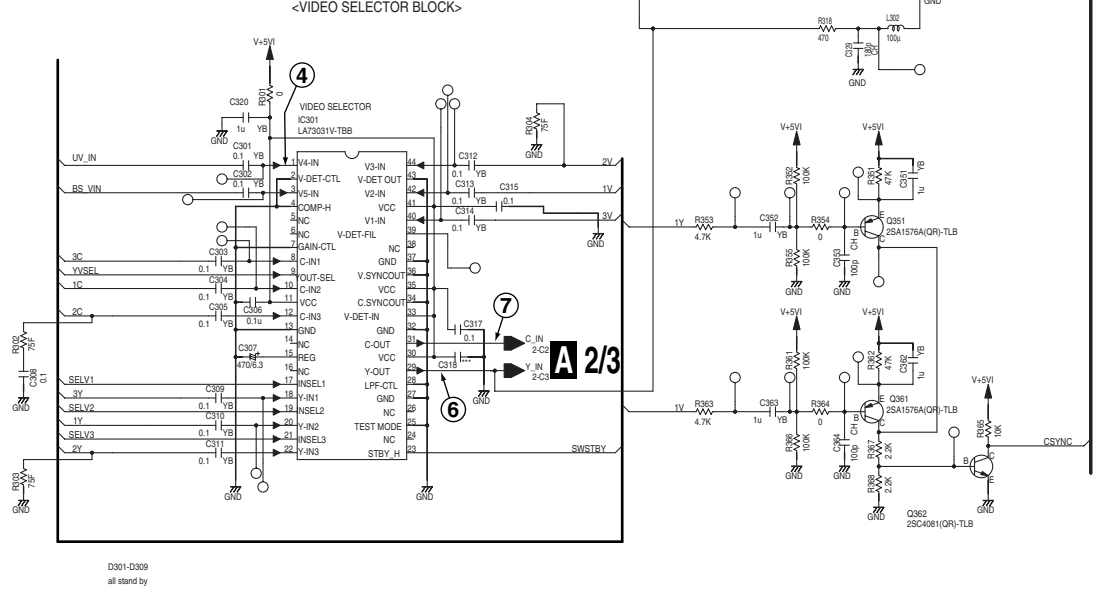


<U/V TUNER BLOCK>

A 3/3 TUJB ASSY (VXX3146)

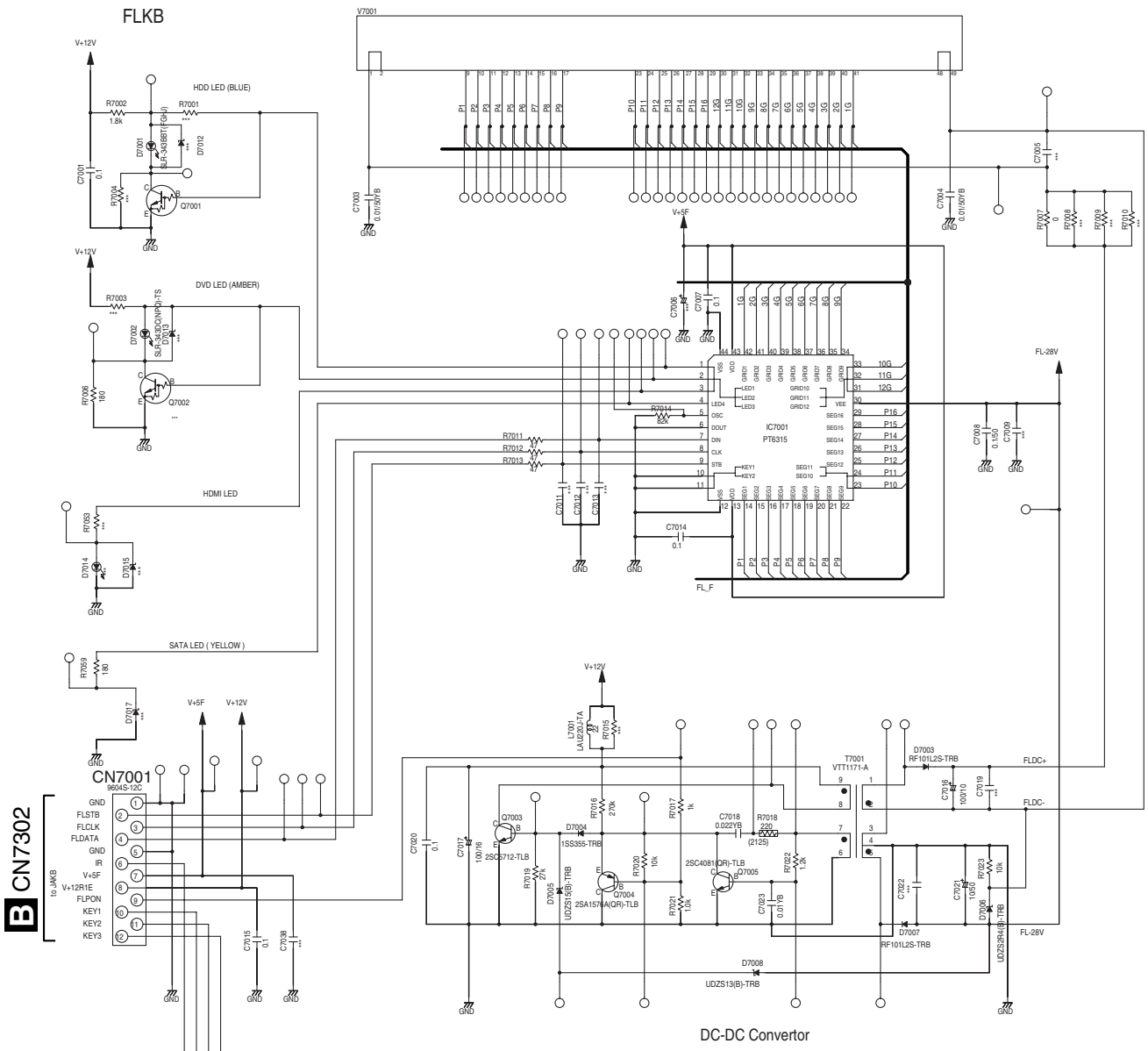


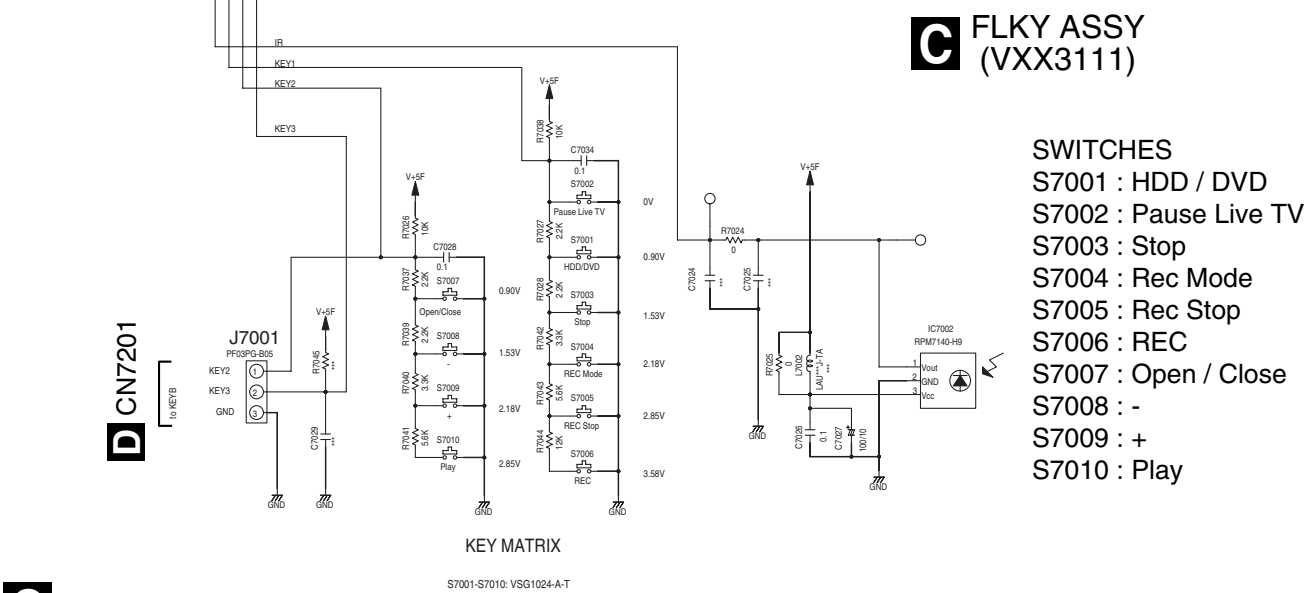
<VIDEO SELECTOR BLOCK>



D301-D309
all stand by

3.6 FJKB, FLKY and KEYB ASSYS

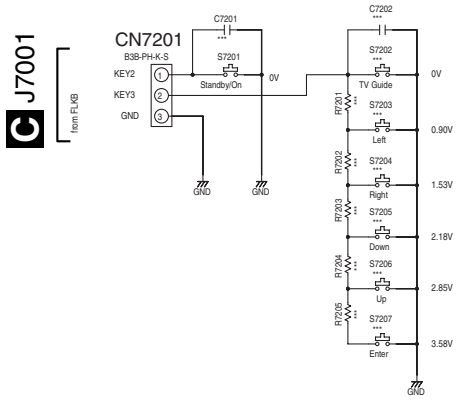




SWITCHES
S7001 : HDD / DVD
S7002 : Pause Live TV
S7003 : Stop
S7004 : Rec Mode
S7005 : Rec Stop
S7006 : REC
S7007 : Open / Close
S7008 : -
S7009 : +
S7010 : Play

D KEYB ASSY (VXX3112)

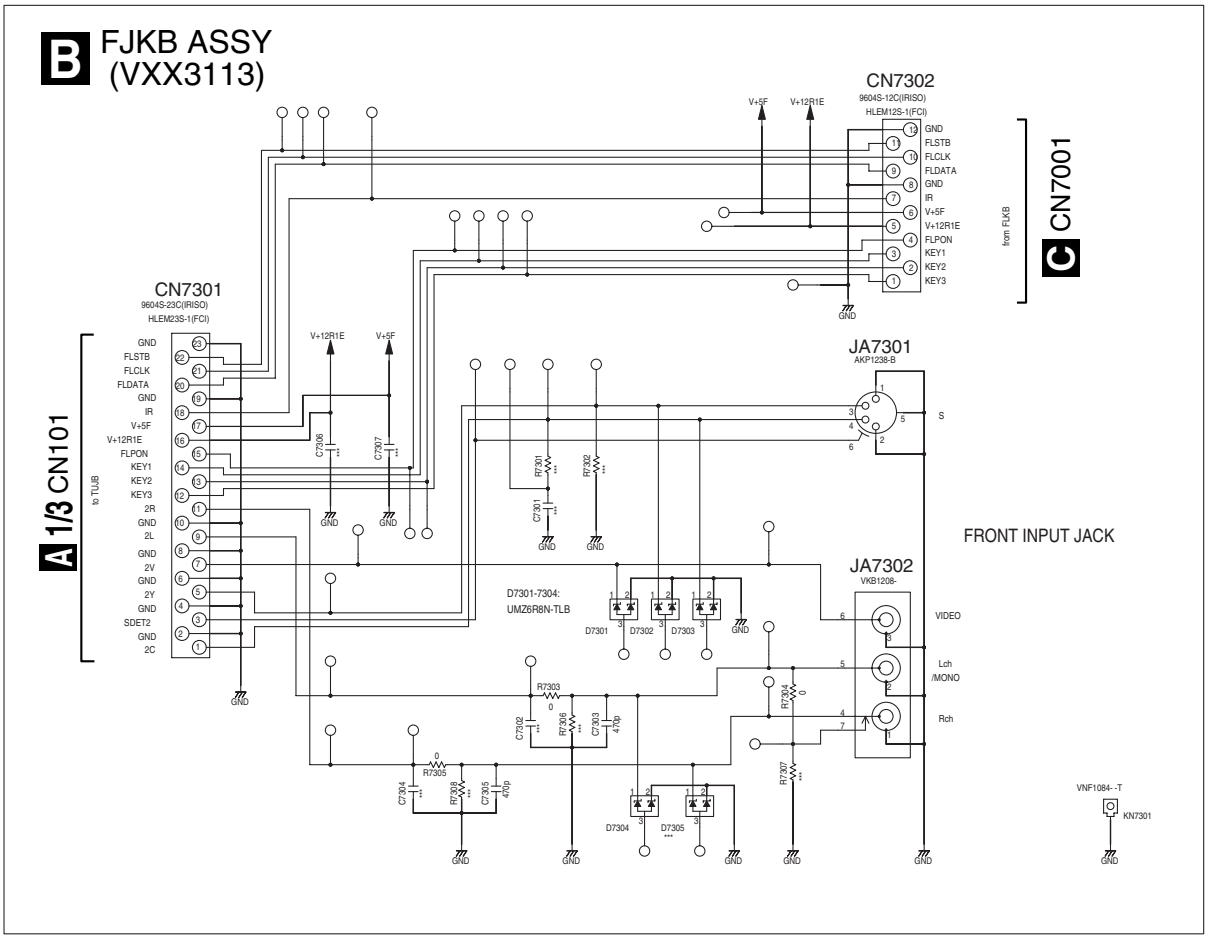
SWITCHES
S7201 : Standby / On



KEY MATRIX

S7201-S7207: VSG1024-A-T

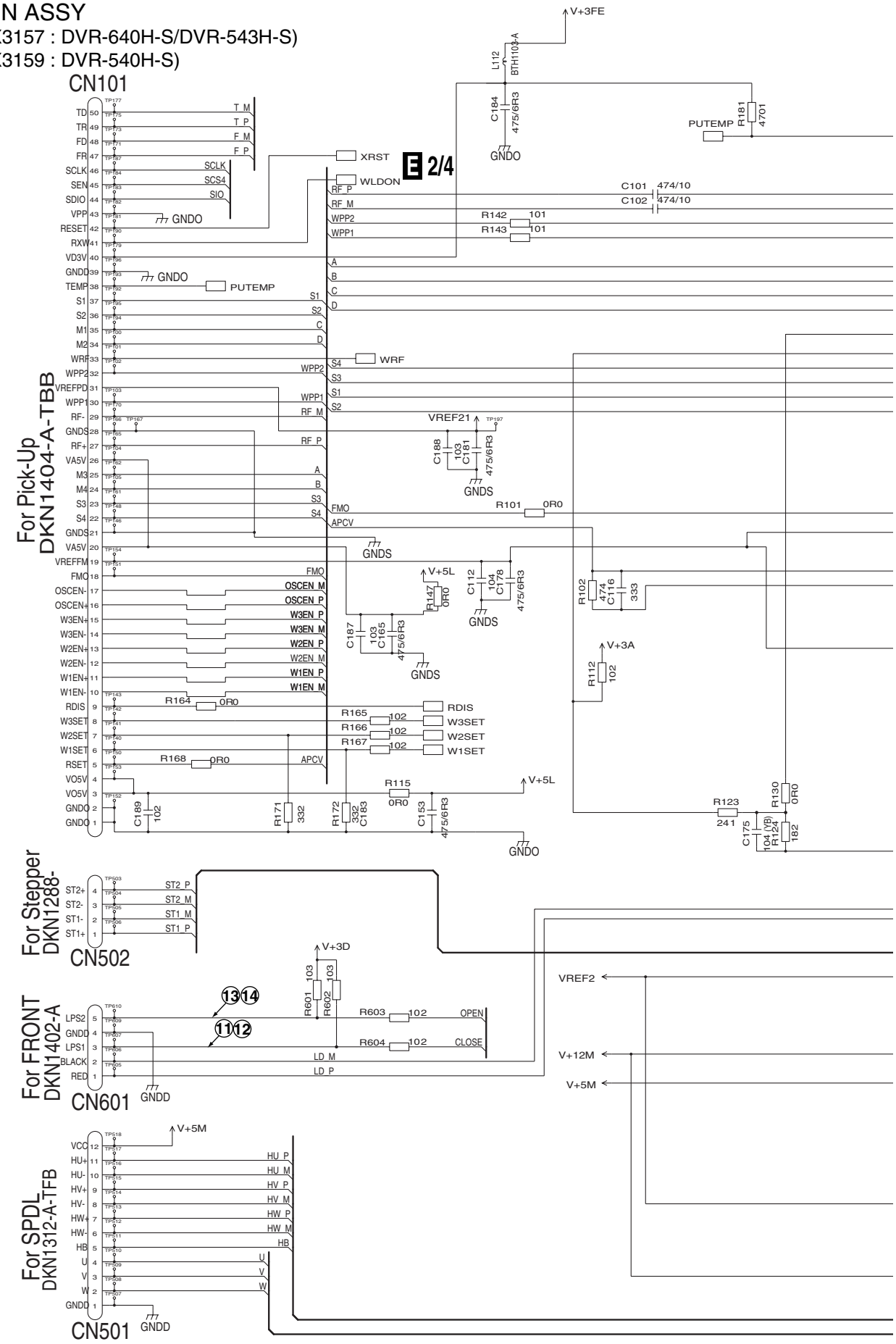
B FJKB ASSY (VXX3113)

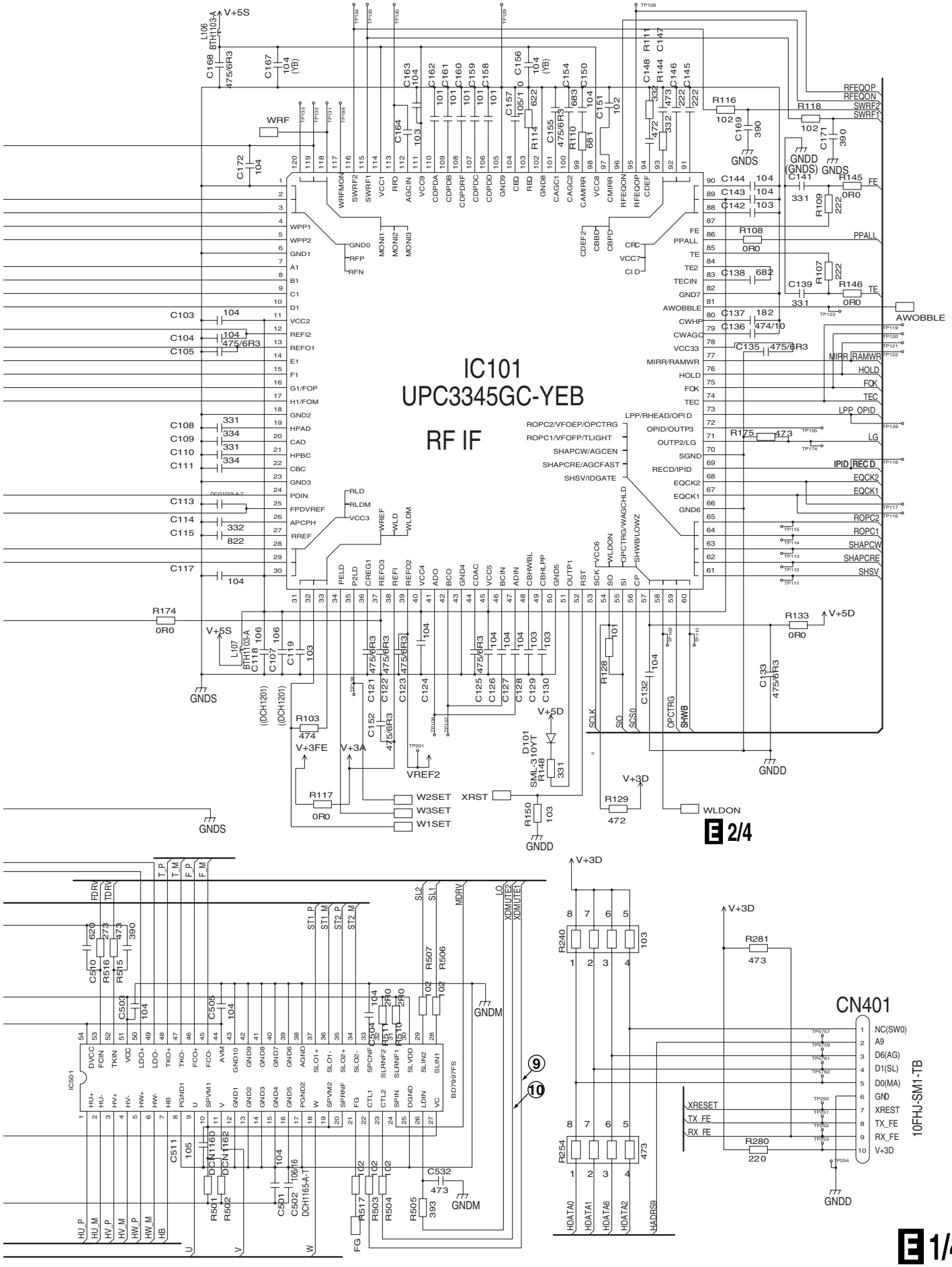


3.7 MAIN ASSY(1/4)

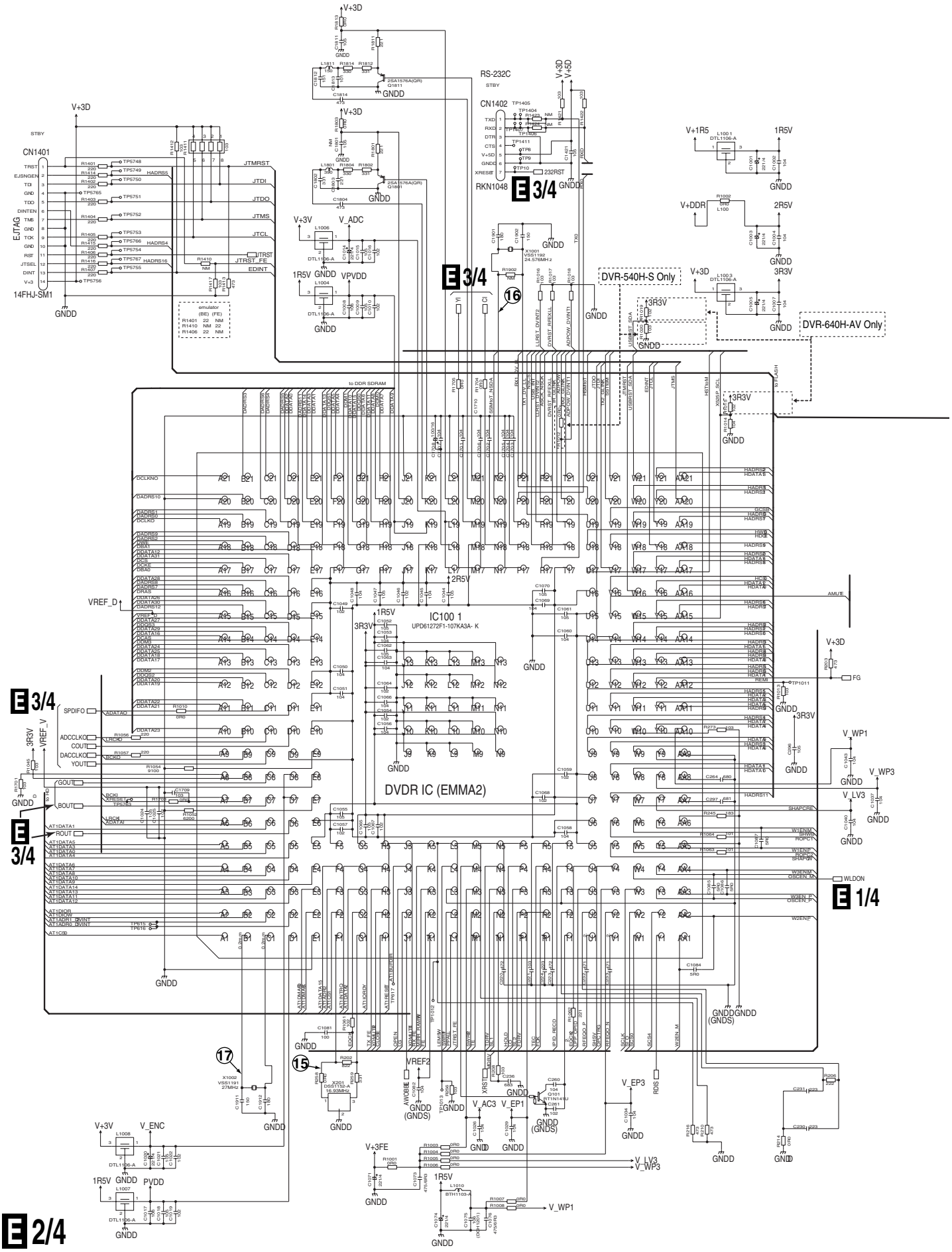
E 1/4 MAIN ASSY

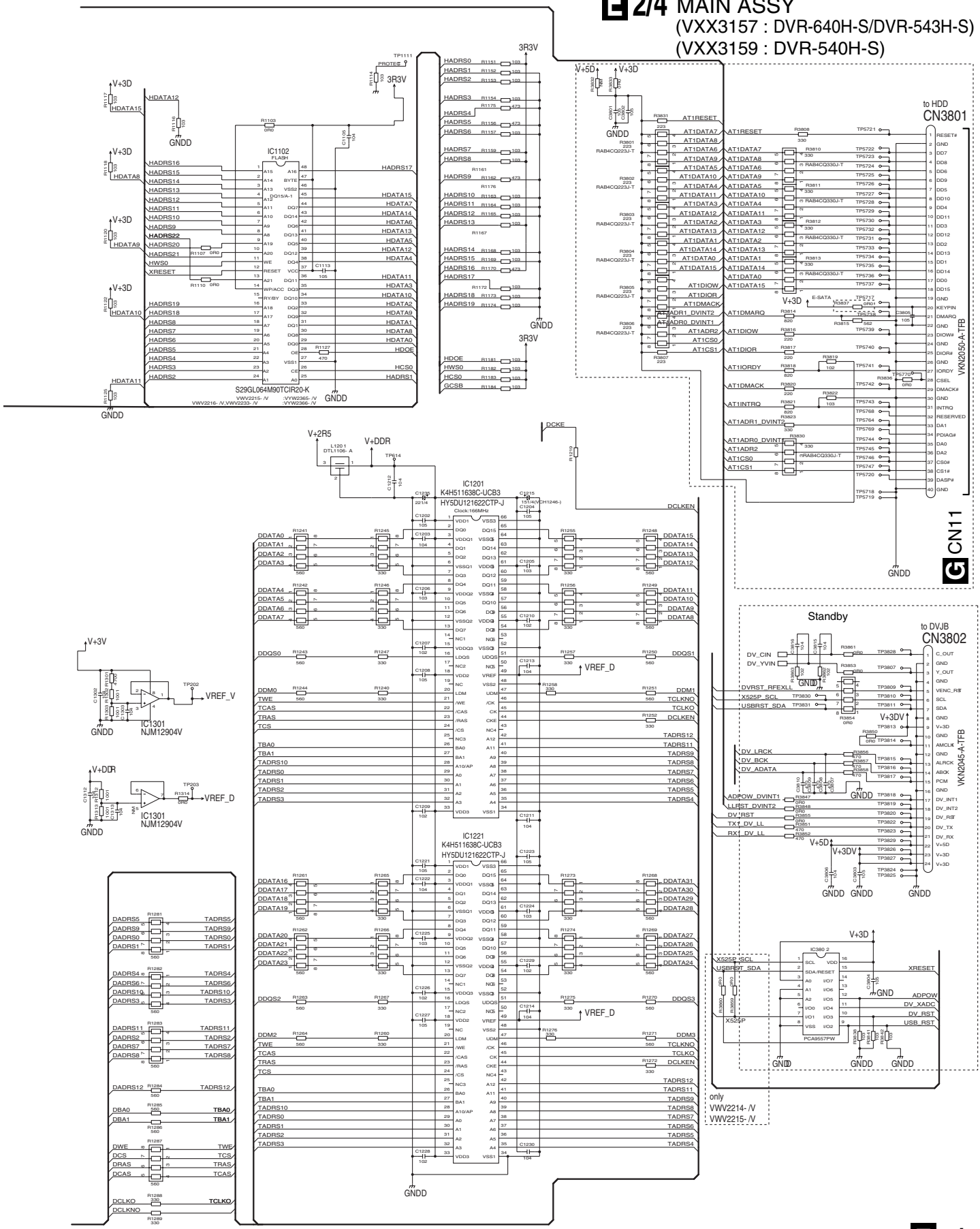
(VXX3157 : DVR-640H-S/DVR-543H-S)
(VXX3159 : DVR-540H-S)



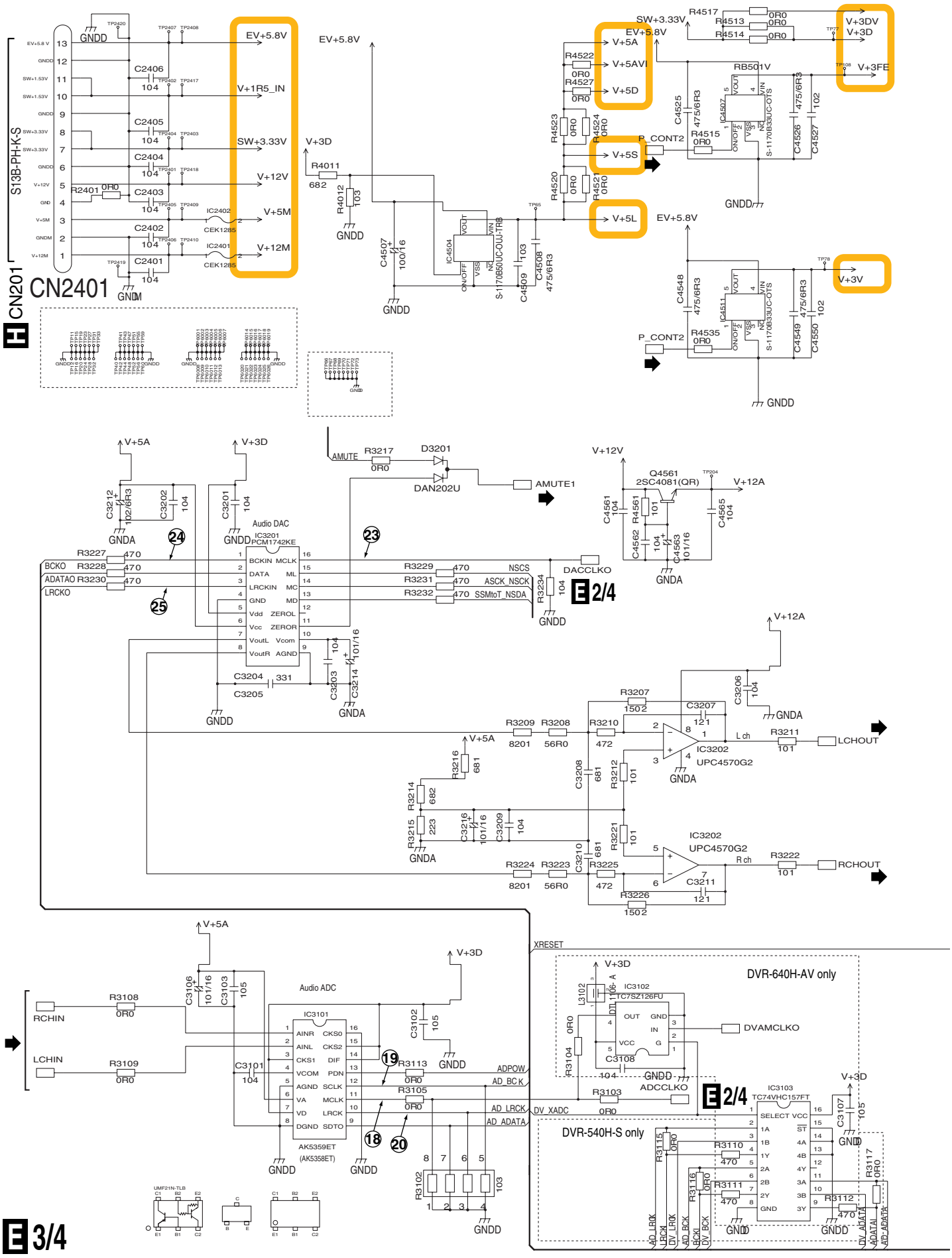

IC101
UPC3345GC-YEB
RF IF
E 2/4
E 1/4
CN401
10FHJ-SM1-TB
BD7997FS
DCH1165A-T
DCH1201
DCG1029-A-T
WRF
VREF2
W2SET
W3SET
W1SET
XRST
WLDON
AWOBBLE
V+5S
V+5D
V+3D
V+3A
V+3FE
GNDS
GNDD
GNDM

3.8 MAIN ASSY(2/4)




IC1102
FLASH
S29GL064M90TCIR20-K
IC1201
K4H511638C-UCB3
HY5DU121622CTP-J
IC1221
K4H511638C-UCB3
HY5DU121622CTP-J
IC1301
NJM12904V
IC1301
NJM12904V
CN3801
to HDD
CN3802
to DVJB
CN11
VKN2050-A-TFB
VKN2045-A-TFB
Standby
only
VWV2214- /V
VWV2215- /V
V+3D
V+5D
V+3V
V+2R5
V+DDR
3R3V
GNDD
VREF_V
VREF_D
DCKE
DCLKEN
TCLKNO
TCLKO
DCLKNO
TADRS12
TADRS11
TADRS9
TADRS8
TADRS7
TADRS6
TADRS5
TADRS4
TADRS3
TADRS2
TADRS1
TADRS0
DDQS0
DDQS1
DDQS2
DDQS3
DDM0
DDM1
DDM2
DDM3
TWE
TCAS
TRAS
TCS
TBA0
TBA1
HDOE
HCS0
HWS0
GCSB
HADRS0
HADRS1
HADRS2
HADRS3
HADRS4
HADRS5
HADRS6
HADRS7
HADRS8
HADRS9
HADRS10
HADRS11
HADRS12
HADRS13
HADRS14
HADRS15
HADRS16
HADRS17
HADRS18
HADRS19
HADRS20
HADRS21
HADRS22
HDATA0
HDATA1
HDATA2
HDATA3
HDATA4
HDATA5
HDATA6
HDATA7
HDATA8
HDATA9
HDATA10
HDATA11
HDATA12
HDATA13
HDATA14
HDATA15
AT1RESET
AT1DATA0
AT1DATA1
AT1DATA2
AT1DATA3
AT1DATA4
AT1DATA5
AT1DATA6
AT1DATA7
AT1DATA8
AT1DATA9
AT1DATA10
AT1DATA11
AT1DATA12
AT1DATA13
AT1DATA14
AT1DATA15
AT1DIOW
AT1DIOR
AT1DMACK
AT1DMARQ
AT1INTRQ
AT1ADR1_DVINT2
AT1ADR0_DVINT1
AT1ADR2
AT1CS0
AT1CS1
AT1IORDY
DV_CIN
DV_YVIN
DVRST_RFEXLL
X525P_SCL
USBRST_SDA
DV_LRCK
DV_BCK
DV_ADATA
ADPOW_DVINT1
LLRST_DVINT2
DV_RST
TX+_DV_LL
RX-_DV_LL
X525P
XRESET
ADPOW
DV_XADC
DV_RST
USB_RST
PCA9557PW

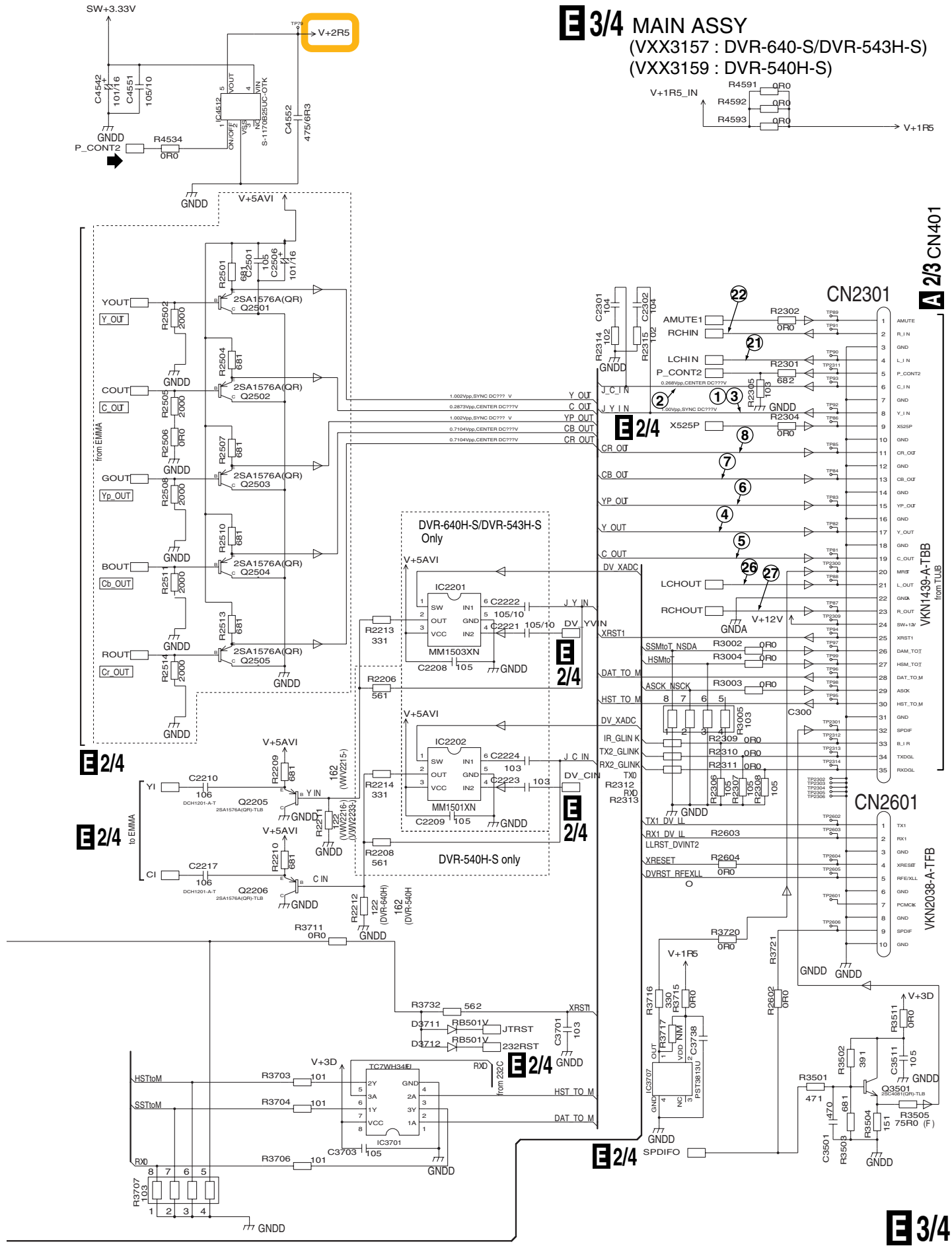
3.9 MAIN ASSY(3/4)



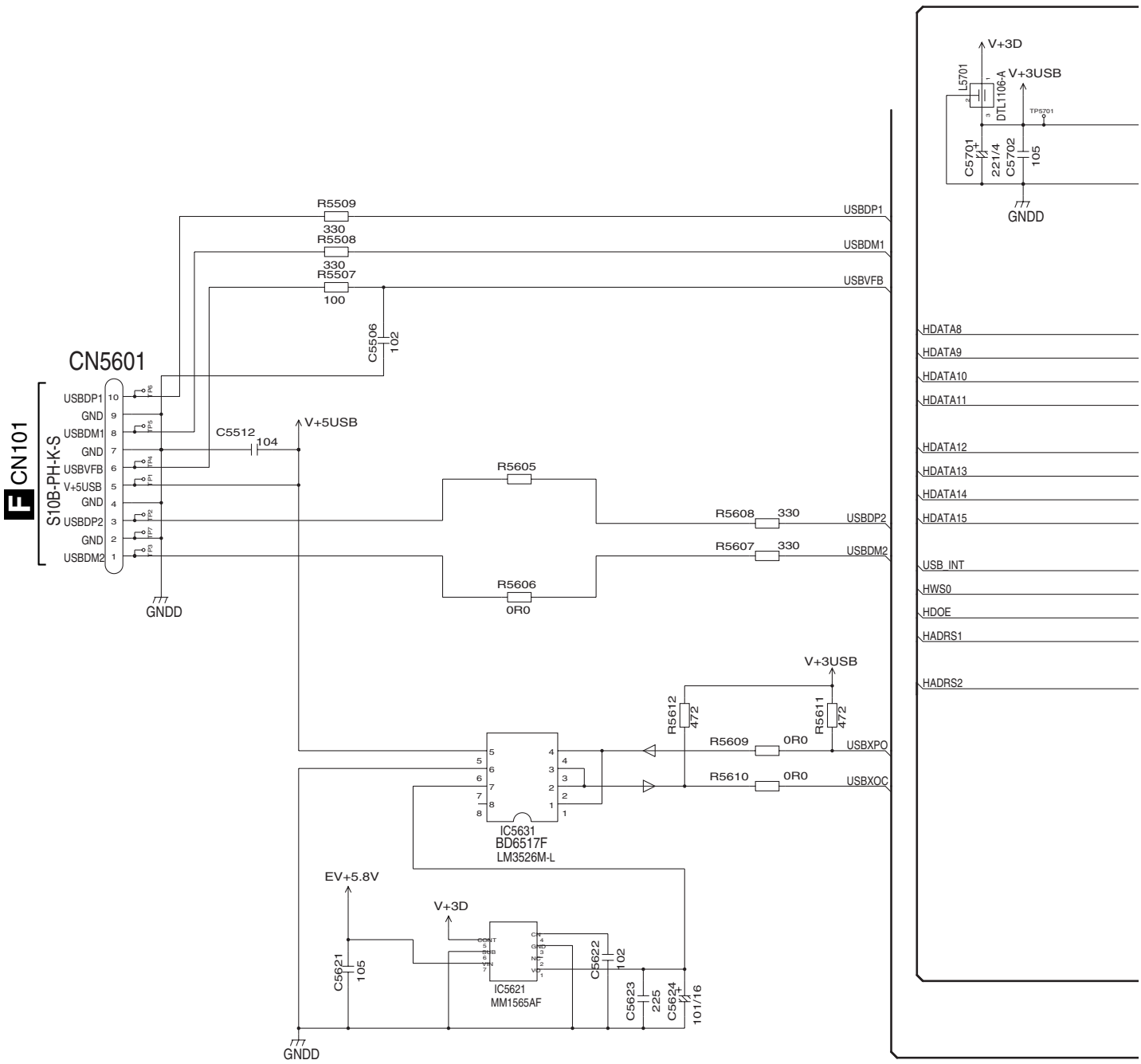
E 3/4 MAIN ASSY

(VXX3157 : DVR-640-S/DVR-543H-S)

(VXX3159 : DVR-540H-S)



3.10 MAIN ASSY(4/4)

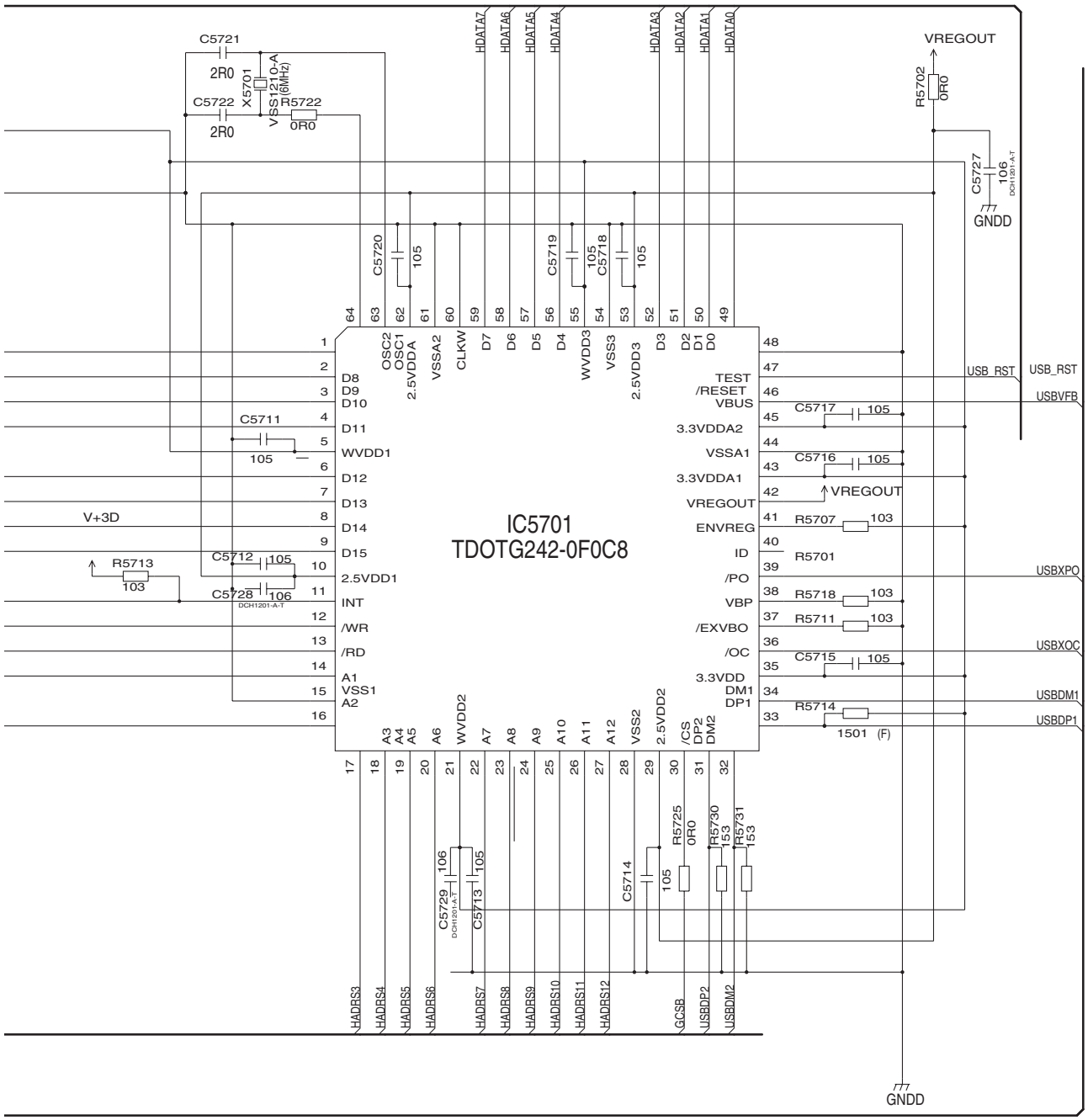


E 4/4

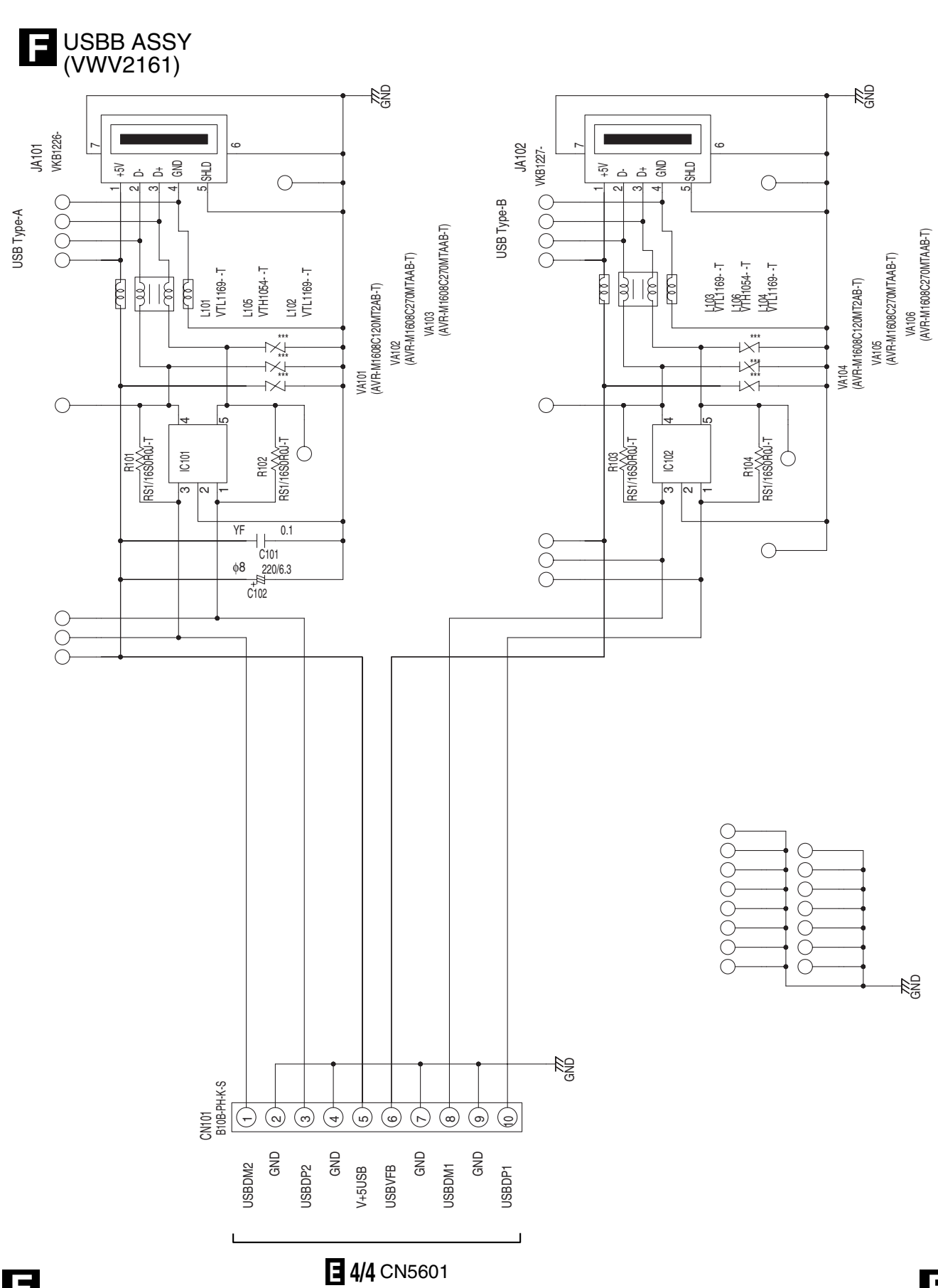
E 4/4 MAIN ASSY

(VXX3157 : DVR-640H-S/DVR-543H-S)
(VXX3159 : DVR-540H-S)

This block is only for DVR-640H-S and DVR-543H-S.

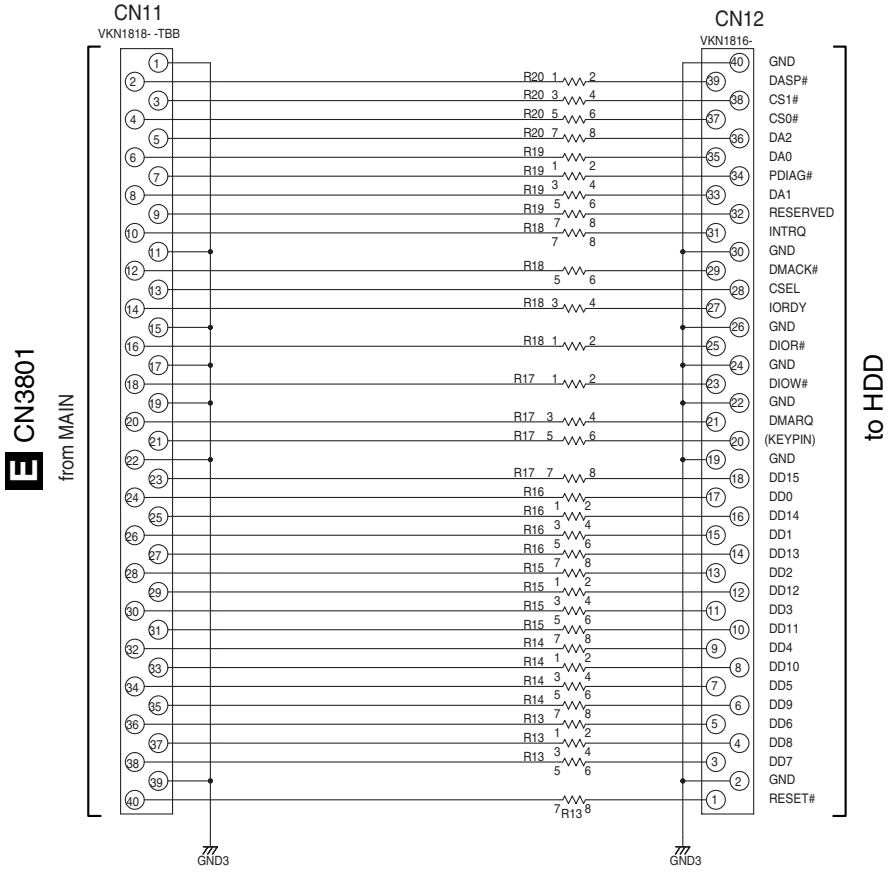


3.11 USBB ASSY (Except DVR-540H-S)



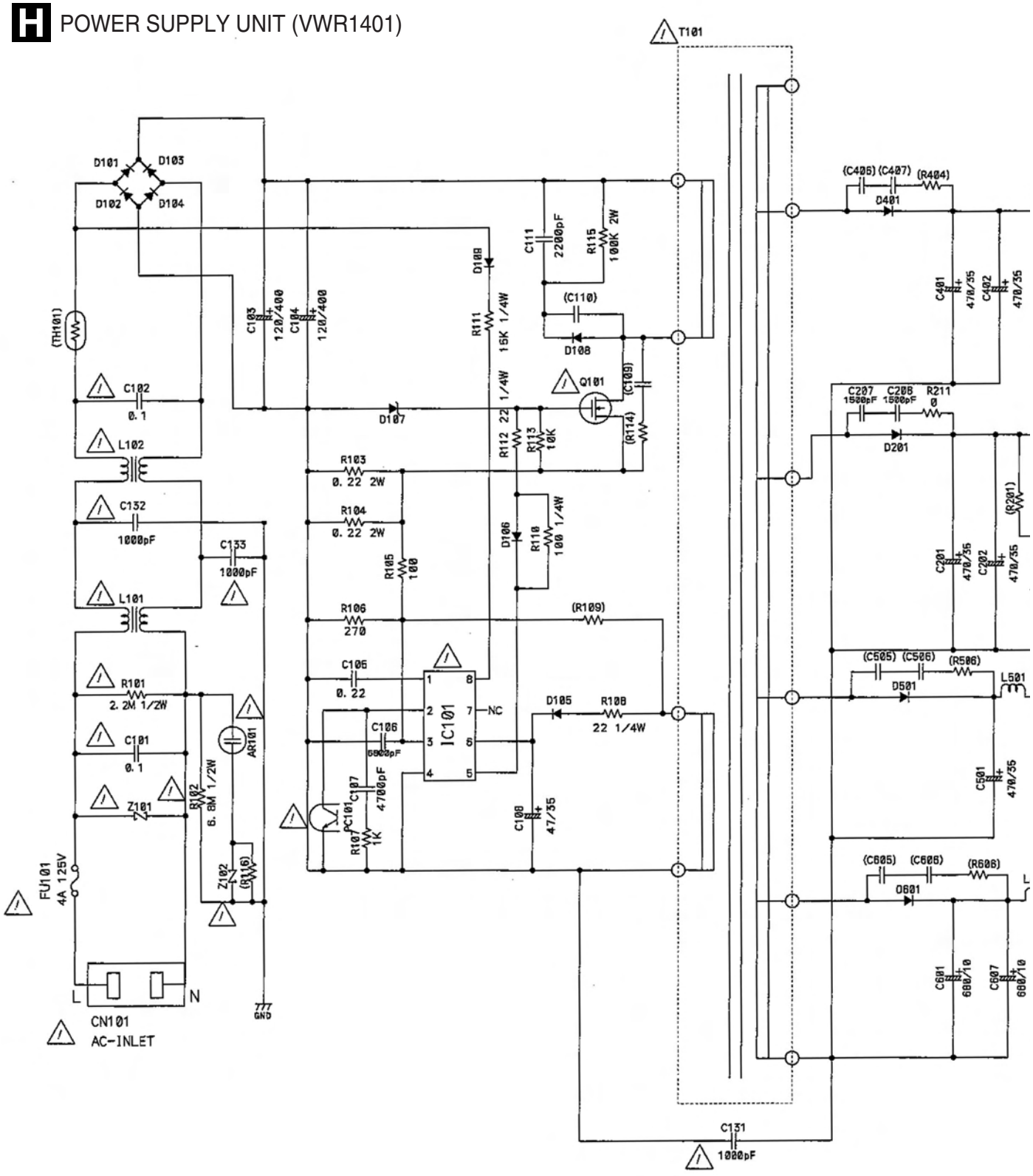
3.12 ATAB ASSY

G ATAB ASSY (VXX3140)

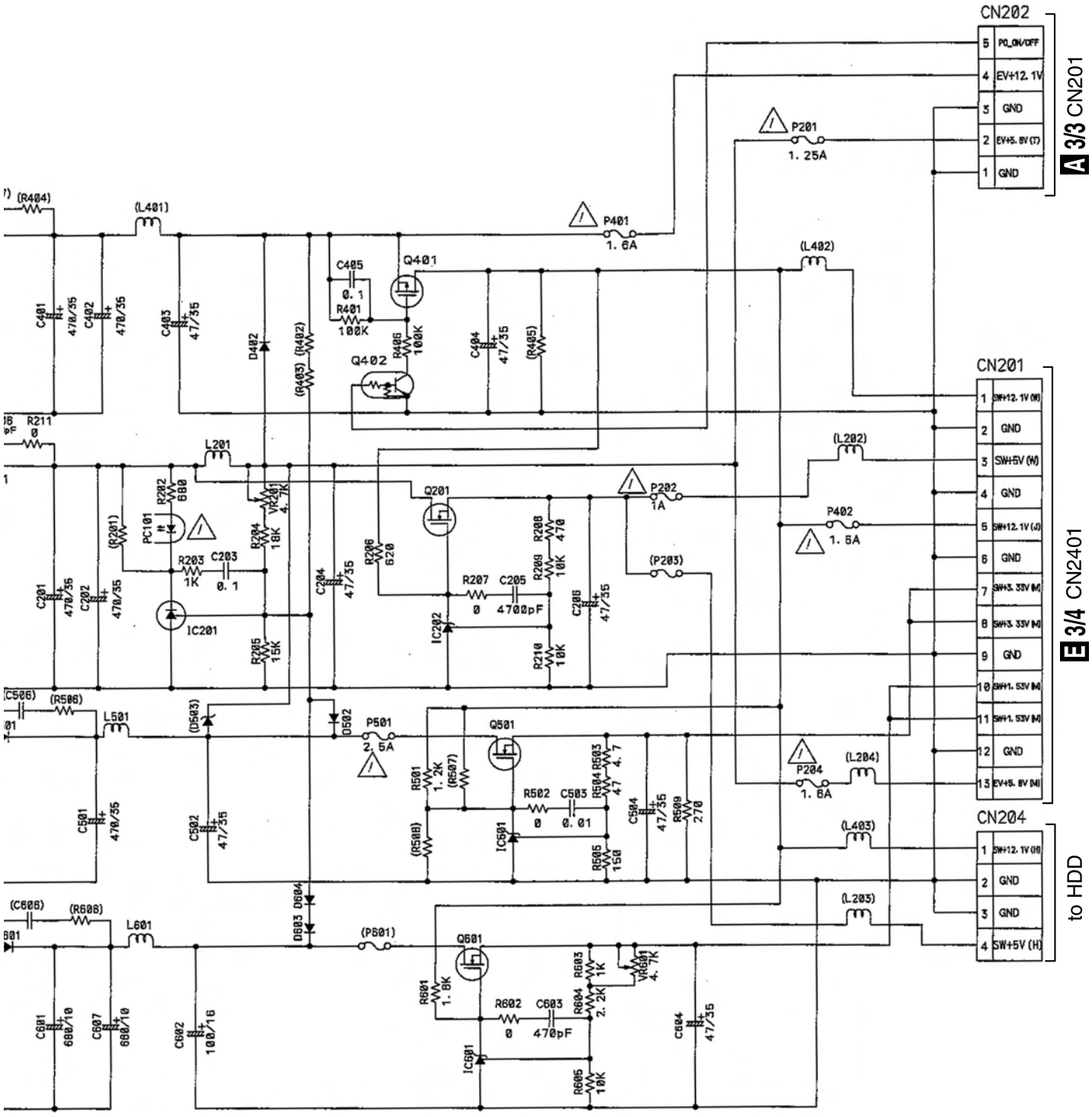


3.13 POWER SUPPLY UNIT

H POWER SUPPLY UNIT (VWR1401)



Unit	Resistor	Ω/W (under 1/4W for no direction W
	Capacitor	μF/V (under 50V for no direction V


CN202
5 PO_ON/OFF
4 EV+12.1V
3 GND
2 EV+5.8V(T)
1 GND
A 3/3 CN201
P201
1.25A
P401
1.6A
Q401
Q402
C405
0.1
R401
100K
R406
100K
(L401)
(L402)
CN201
1 SW+12.1V(M)
2 GND
3 SW+5V(M)
4 GND
5 SW+12.1V(J)
6 GND
7 SW+3.3V(M)
8 SW+3.3V(M)
9 GND
10 SW+1.53V(M)
11 SW+1.53V(M)
12 GND
13 EV+5.8V(M)
E 3/4 CN2401
P202
1A
P402
1.6A
(L202)
(P203)
Q201
IC201
IC202
L201
R211
0
R202
680
VR201
4.7K
PC101
R203
1K
C203
0.1
R204
18K
R205
15K
R206
620
R207
0
C205
4700pF
R208
470
R209
10K
R210
10K
C201
470/35
C202
470/35
C204
47/35
C206
47/35
(C506)
(R506)
L501
(D503)
D502
P501
2.5A
Q501
R501
1.2K
(R507)
R502
0
C503
0.01
R504
47
R503
4.7
C504
47/35
R509
270
R505
150
(R508)
IC501
C501
470/35
C502
47/35
P204
1.8A
(L204)
(L403)
CN204
1 SW+12.1V(H)
2 GND
3 GND
4 SW+5V(H)
to HDD
(L203)
(C606)
(R606)
L601
D603
D604
(P501)
Q601
R601
1.8K
R602
0
C603
470pF
R603
1K
R604
2.2K
VR601
4.7K
R605
10K
IC601
C601
680/10
C607
680/10
C602
100/16
C604
47/35

3.14 WAVE FORMS

Note : The encircled numbers denote measuring point in the schematic diagram.

A TUJB ASSY

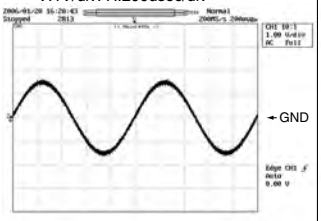
Measurement Condition :

No.1, No.19 : 1kHz, 2Vrms

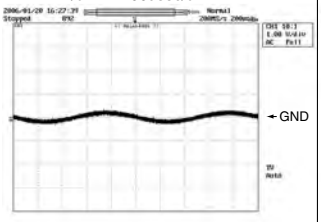
No.2 : 1kHz, MONO. 60% mod

No.4 - No.18 : 75% Color-bar (100 / 0 / 75 / 0)

1 **IC201- pin 18,C224+side**
(Audio Lch) (Function:L1)
Audio Sel Output
V:1V/div. H:200usec/div

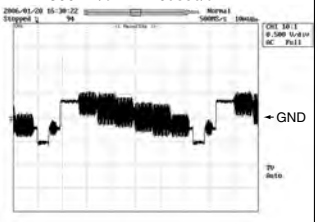


2 **IC201 - Pin6,C216 +side**
(Audio Lch) (Function:2ch)
Tuner Audio Output
V:1V/div. H:200usec/div



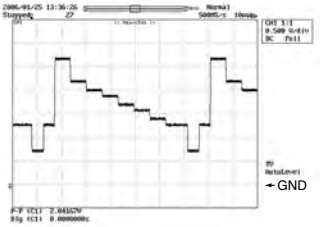
3

4 **C301 - pin1**
(Function: 2ch)
UVIN
V:500mV/div. H:10usec/div

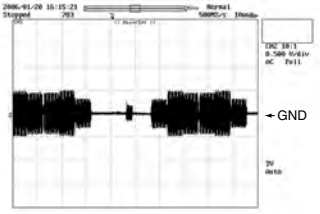


5

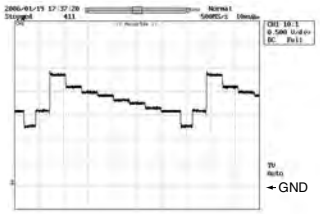
6 **IC301, pin29(Y)**
(Function L1)
Video Sel Output (Y)
V:500mV/div H:10us/div



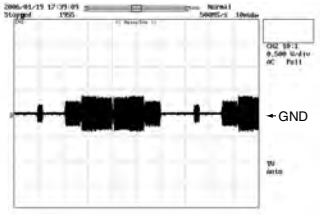
7 **IC301, pin31(C)**
(Function L1)
Video Sel Output (C)
V:500ms/div H:10us/div



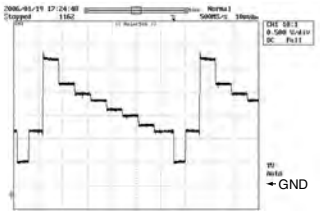
8 **IC501, pin8(Y)**
(Function PLAY)
Video Dri Input (Y)
V:500mV/div H:10us/div



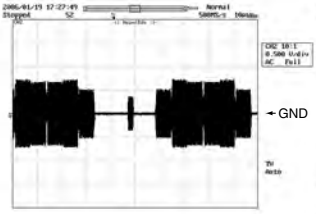
9 **IC501, pin 4 (C)**
(Function PLAY)
Video Dr Input (C)
V:500mV/div H:10us/div



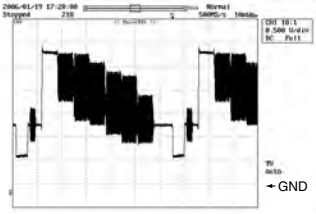
10 **IC501, pin27 (Y)**
(Function PLAY)
Video Dr Output (C)
V:500mV/div, H:10us/div



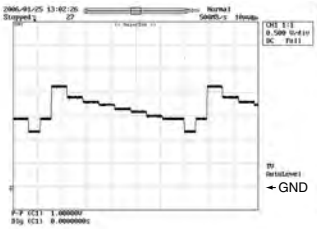
11 **IC501, pin32 (C)**
(Function PLAY)
Video Dri Output (C)
V:500mv/div H:10us/div



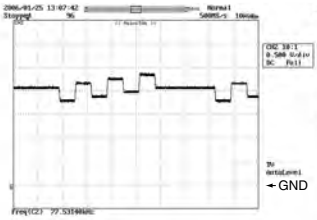
12 **IC501, pin29 (Vcbs)**
(Function PLAY)
Video Dri Output (Cvbs)
V:500mV/div H:10us/div



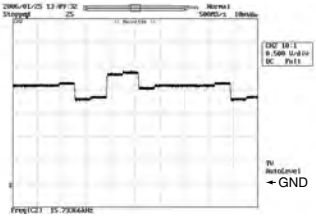
13 **IC501, pin11(Yp)**
(Function PLAY)
Video Dri Input (Yp)
V:500mV/div H:10us/div



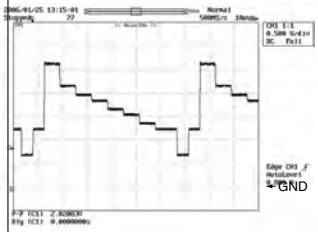
14 **IC501, pin13(Cb)**
(Function PLAY)
Video Dri Input (Cb)
V:500mV/div H:10us/div



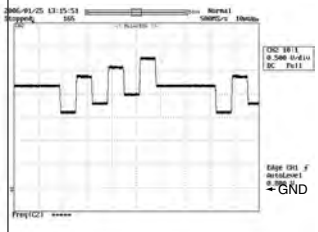
15 **Video Dri Input (Cr)**
(Function PLAY)
Video Dri Input (Cb
V:500mV/div H:10us/div



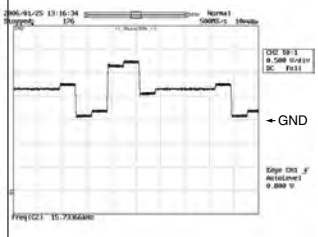
16 **IC501, pin24(Yp), C519+side**
(Function PLAY)
Video Dri Output (Yp)
V:500mV/div H:10us/div



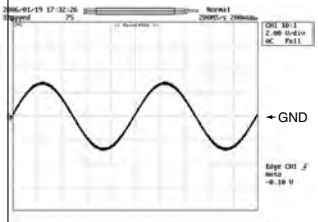
17 **IC501, pin21(Cb), C520+side**
(Function PLAY)
Video Dri Output (Cb)
V:500mV/div H:10us/div



18 **IC501, pin18(Cr), C521+side**
(Function PLAY)
Video Dri Output (Cr)
V:500mV/div H:10us/div



19 **CN401,pin15(Lch), C549+side**
(Function PLAY)
Audio Output (Lch)
V:2.00V/div H:200us/div

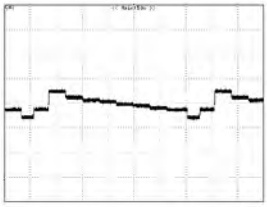


E MAIN ASSY

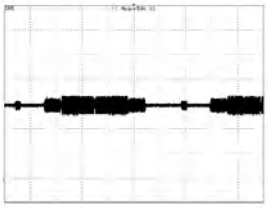
Measurement Condition :

No.1 - 8 : EBU Color Bar (100 / 0 / 75 / 0)

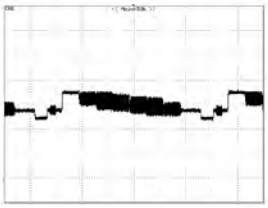
1 CN2301 Pin8 (Y_IN)
V: 1V/div. H: 10us/div.



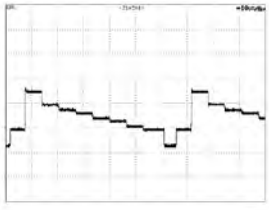
2 CN2301 Pin6 (C_IN)
V: 1V/div. H: 10us/div.



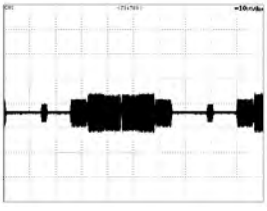
3 CN2301 Pin_8 (CVBS_IN)
V: 1V/div. H: 10us/div.



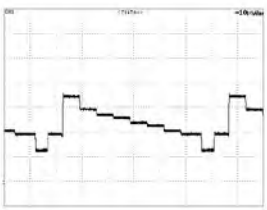
4 CN2301 Pin17 (Y_OUT)
V: 0.5V/div. H: 10us/div.



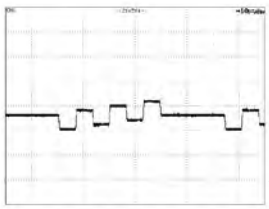
5 CN2301 Pin19 (C_OUT)
V: 0.5V/div. H: 10us/div.



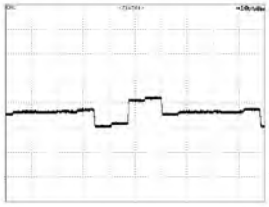
6 CN2301 Pin15 (YP_OUT)
V: 0.5V/div. H: 10us/div.



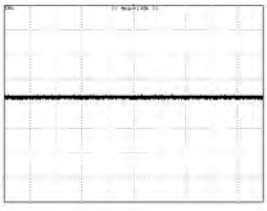
7 CN2301 Pin13 (CB_OUT)
V: 0.5V/div. H: 10us/div.



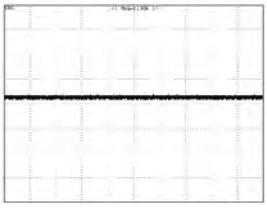
8 CN2301 Pin11 (CR_OUT)
V: 0.5V/div. H: 10us/div.



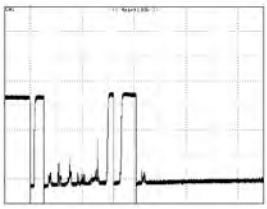
9 IC501 Pin22 (XDMUTE1)
V: 1V/div. H: 20us/div.



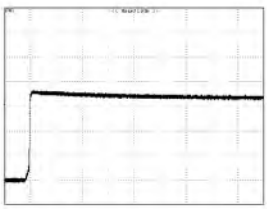
10 IC501 Pin23 (XDMUTE2)
V: 1V/div. H: 20us/div.



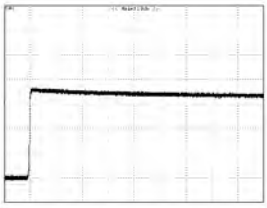
11 CN601 Pin3 (CLOSE)
open → close
V: 1V/div. H: 20us/div.



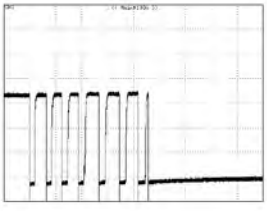
12 CN601 Pin3 (CLOSE)
close → open
V: 1V/div. H: 20us/div.



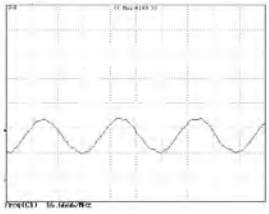
13 CN601 Pin5 (CLOSE)
open → close
V: 1V/div. H: 20us/div.



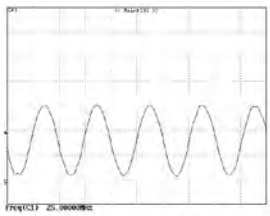
14 CN601 Pin5 (CLOSE)
close → open
V: 1V/div. H: 20us/div.



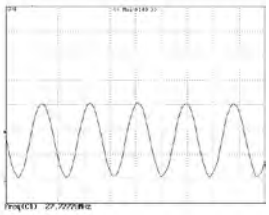
15 X201 (16.93MHz)
V: 1V/div. H: 20ns/div.



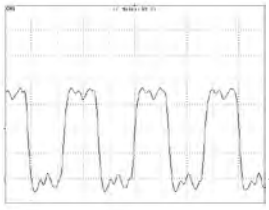
16 X1001 (24.576MHz)
V: 1V/div. H: 20ns/div.



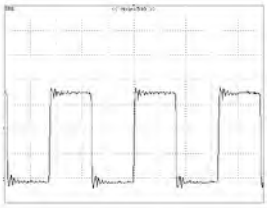
17 X1002 (27MHz)
V: 1V/div. H: 20ns/div.



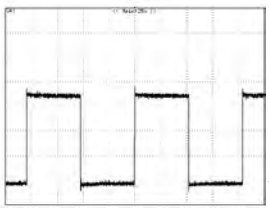
18 IC3101 Pin11 (ADCCLKO)
V: 1V/div. H: 20ns/div.



19 IC3101 Pin12 (AD_BCK)
V: 1V/div. H: 100ns/div.



20 IC3101 Pin10 (AD_LRCK)
V: 1V/div. H: 5us/div.



E MAIN ASSY

A

B

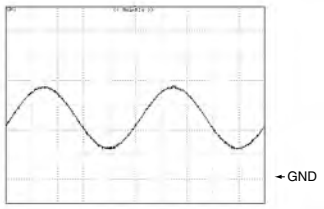
C

D

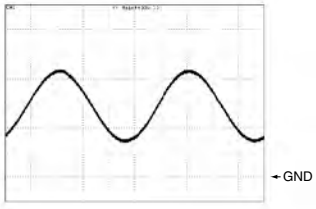
E

F

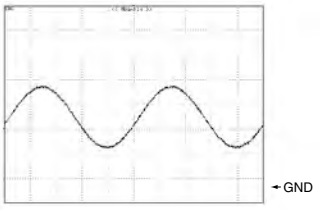
21 **CN2301 Pin4 (LCH IN)**
V: 1V/div. H: 200us/div.



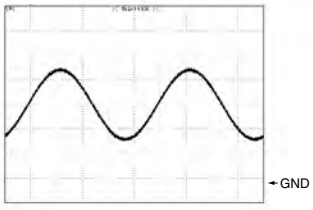
26 **CN2301 Pin21 (LCH OUT)**
V: 2V/div. H: 200us/div.



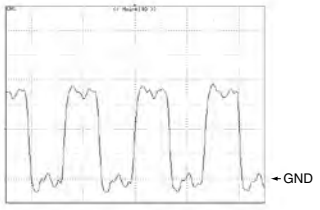
22 **CN2301 Pin2 (RCH IN)**
V: 1V/div. H: 200us/div.



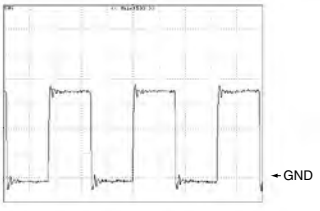
27 **CN2301 Pin23 (RCH OUT)**
V: 2V/div. H: 200us/div.



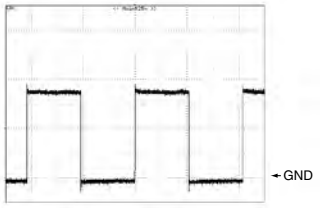
23 **IC3201 Pin16 (DACCLKO)**
V: 1V/div. H: 20ns/div.



24 **IC3201 Pin1 (DACBCKO)**
V: 1V/div. H: 100ns/div.



25 **IC3201 Pin3 (DACLRCKO)**
V: 0.5V/div. H: 5us/div.



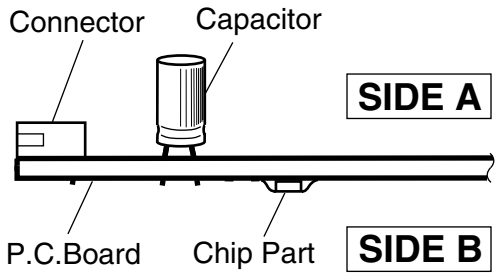
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

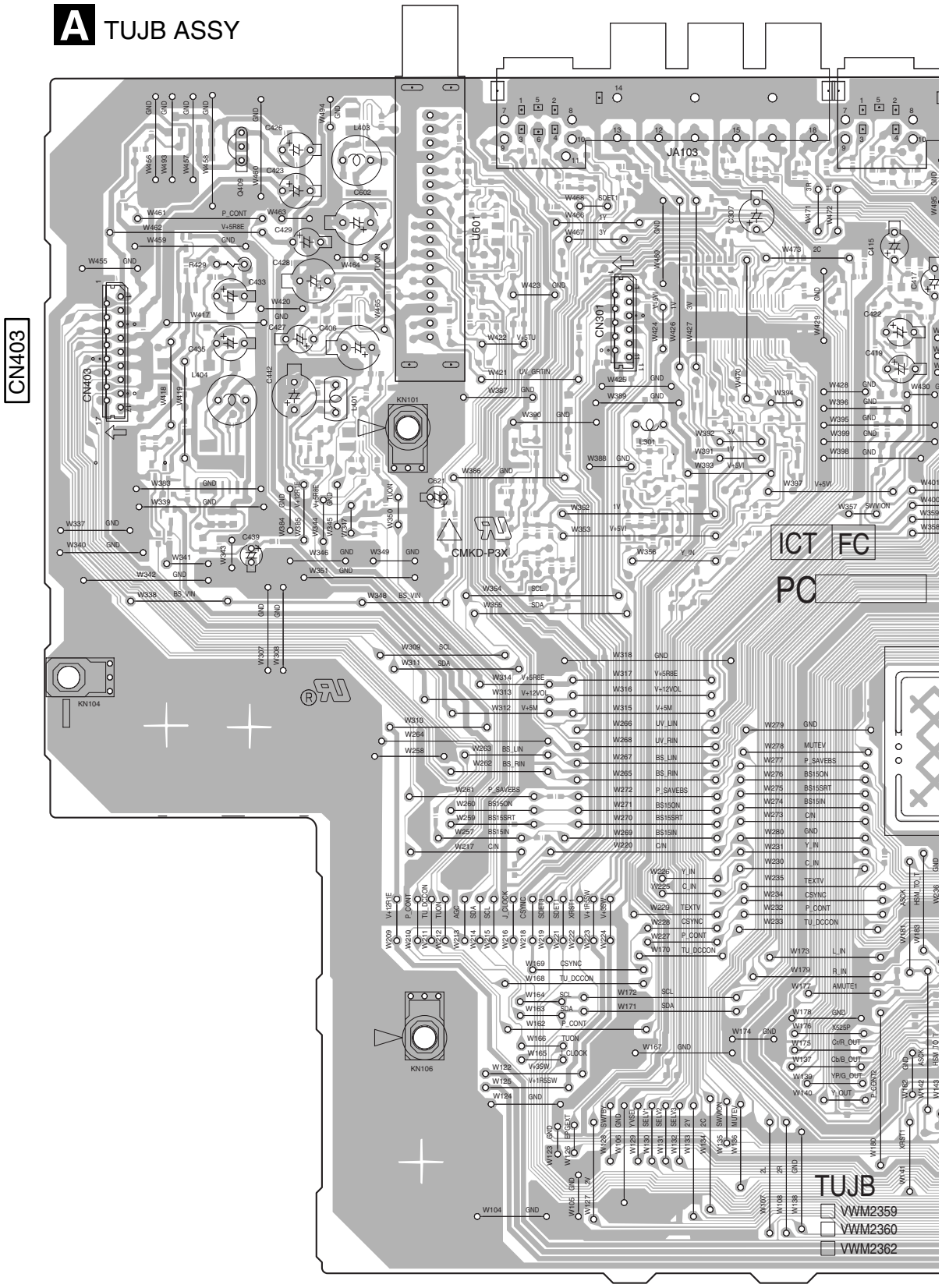
Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
		3-terminal regulator

3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.

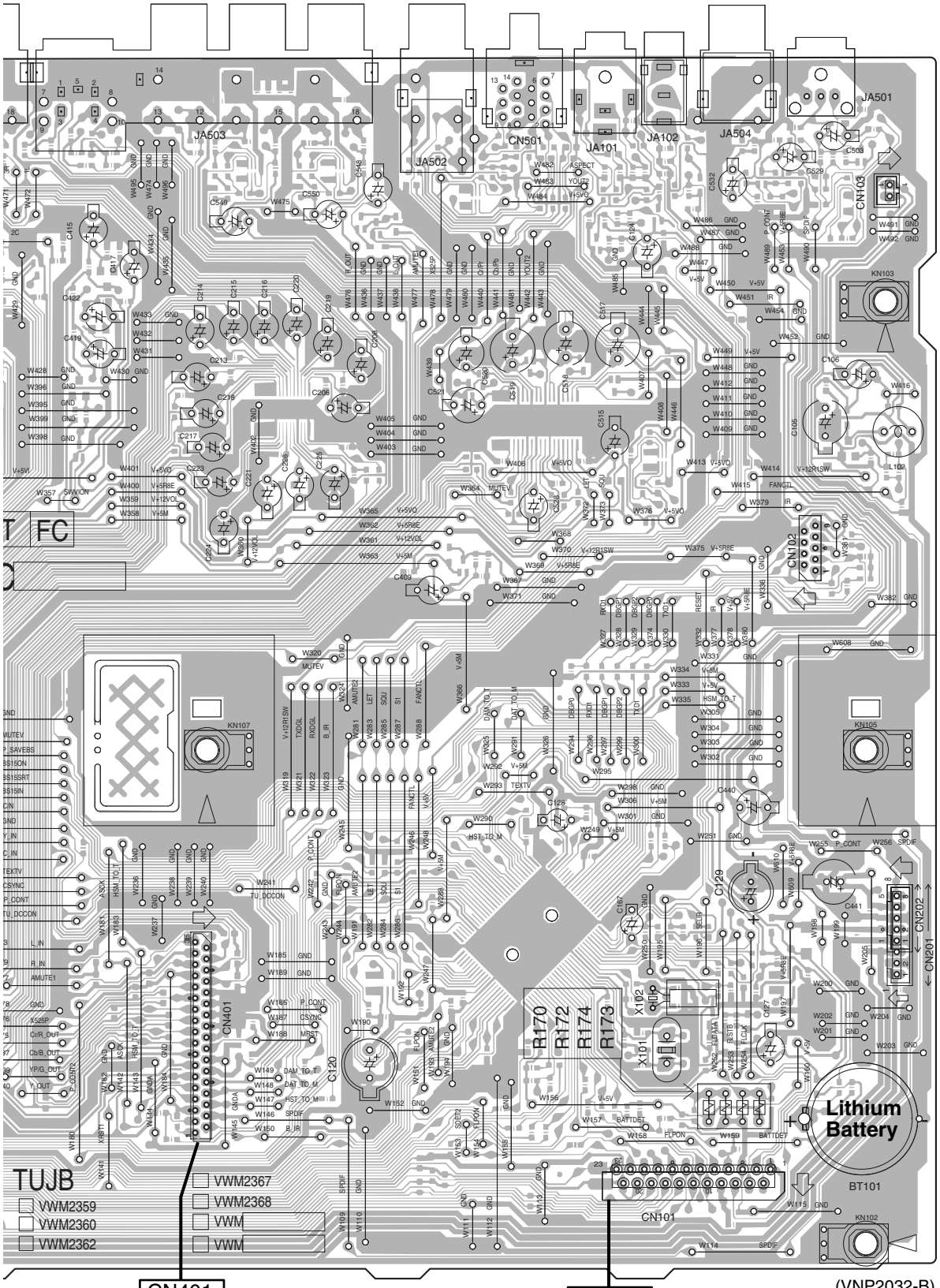


4.1 TUJB ASSY

SIDE A



SIDE A



CN401

E CN2301

CN101

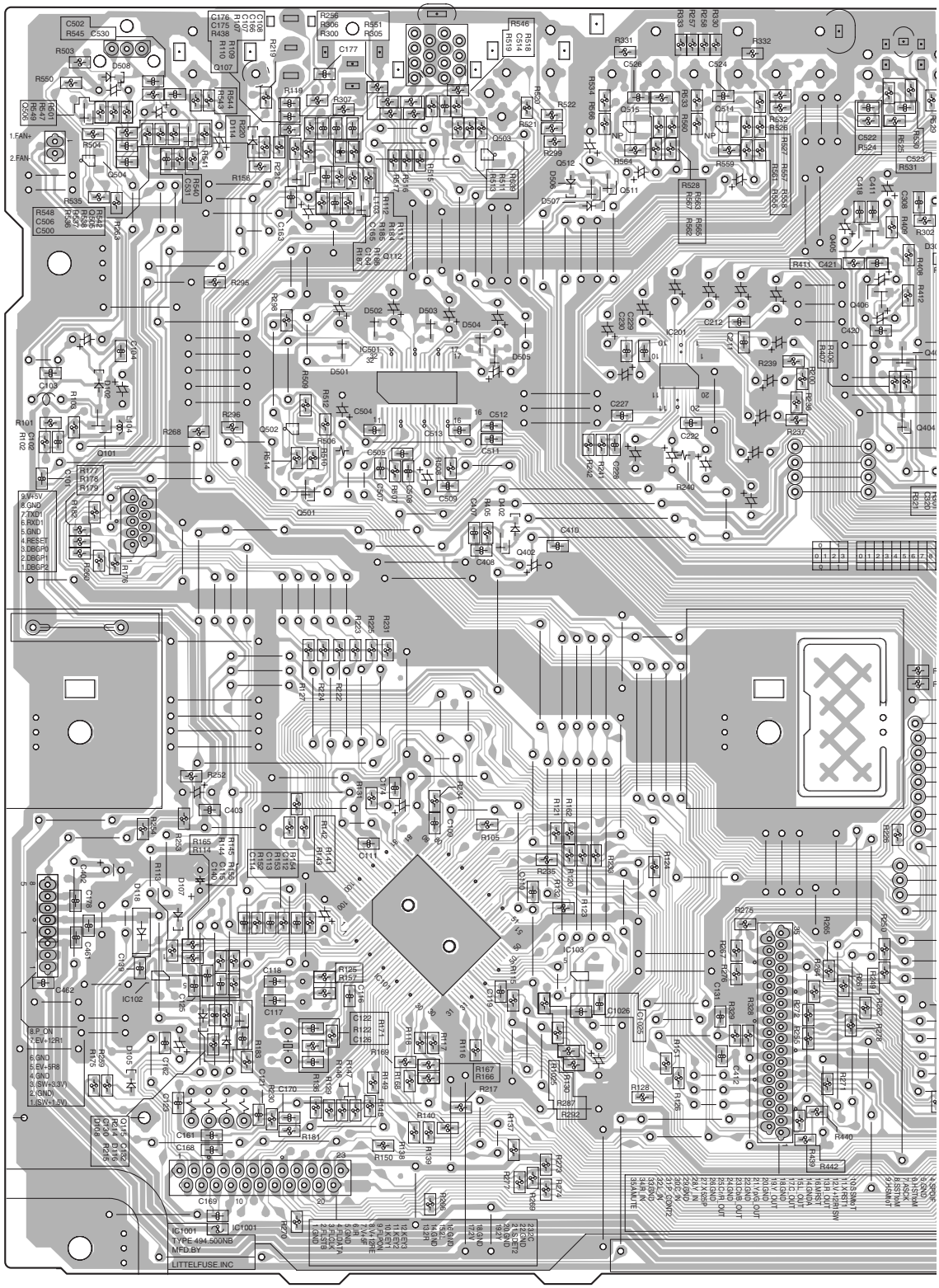
B CN7301

A

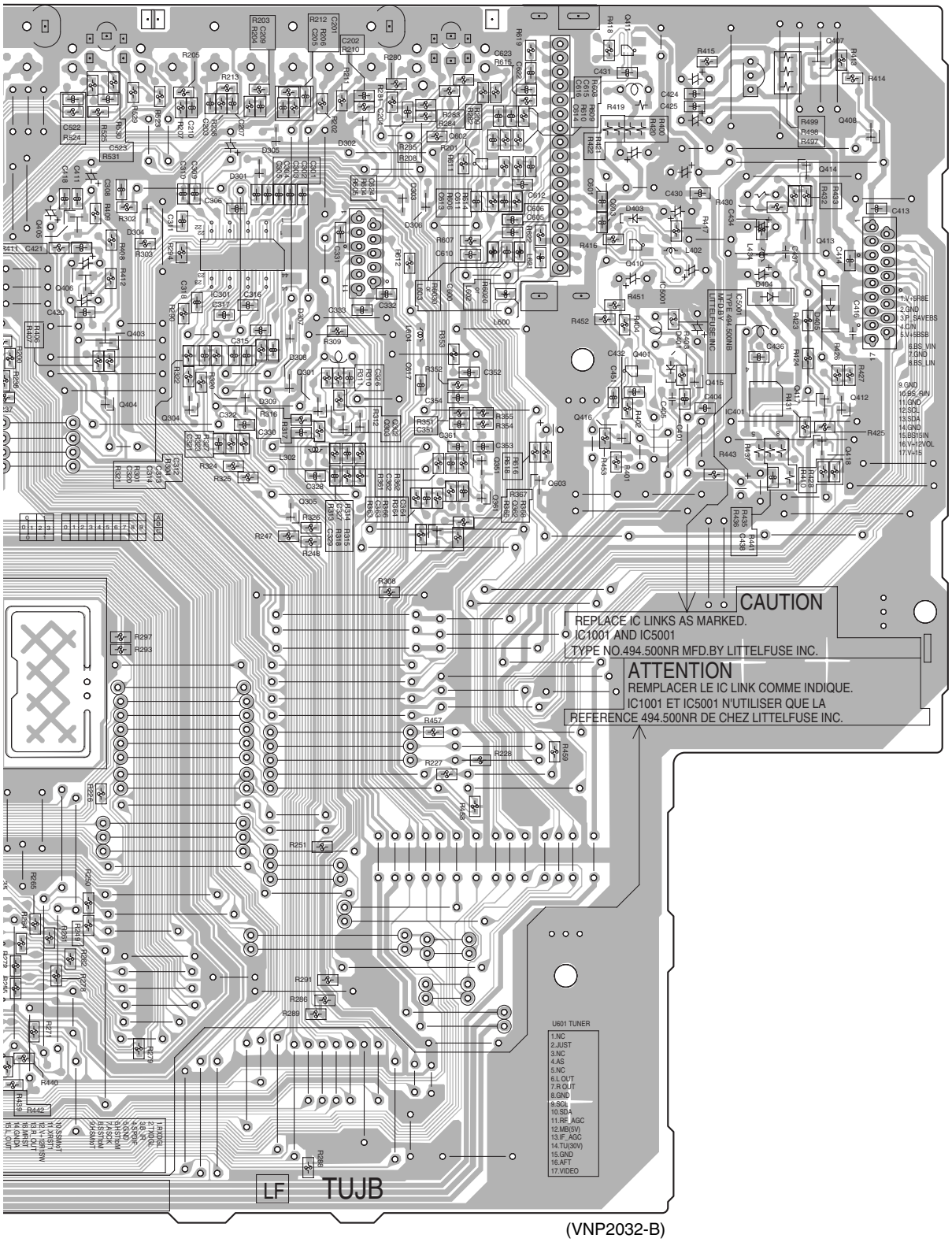
SIDE B

A TUJB ASSY

IC	Q
	Q411
	Q407 Q107
	Q506
	Q515 Q514
	Q503 Q408
	Q602
	Q512
	Q504 Q414
	Q511
	Q505
	Q405
	Q112 Q413
	Q410
IC5001	
IC301	Q406
IC201	
IC501	Q403
	Q401
	Q301
	Q415 Q417
	Q412
	Q502 Q404
IC401	Q304 Q303 Q302 Q416
	Q101
	Q351 Q418
	Q501 Q603
	Q361 Q362
	Q305
	Q402
IC103	
IC101	
IC102	
	Q115

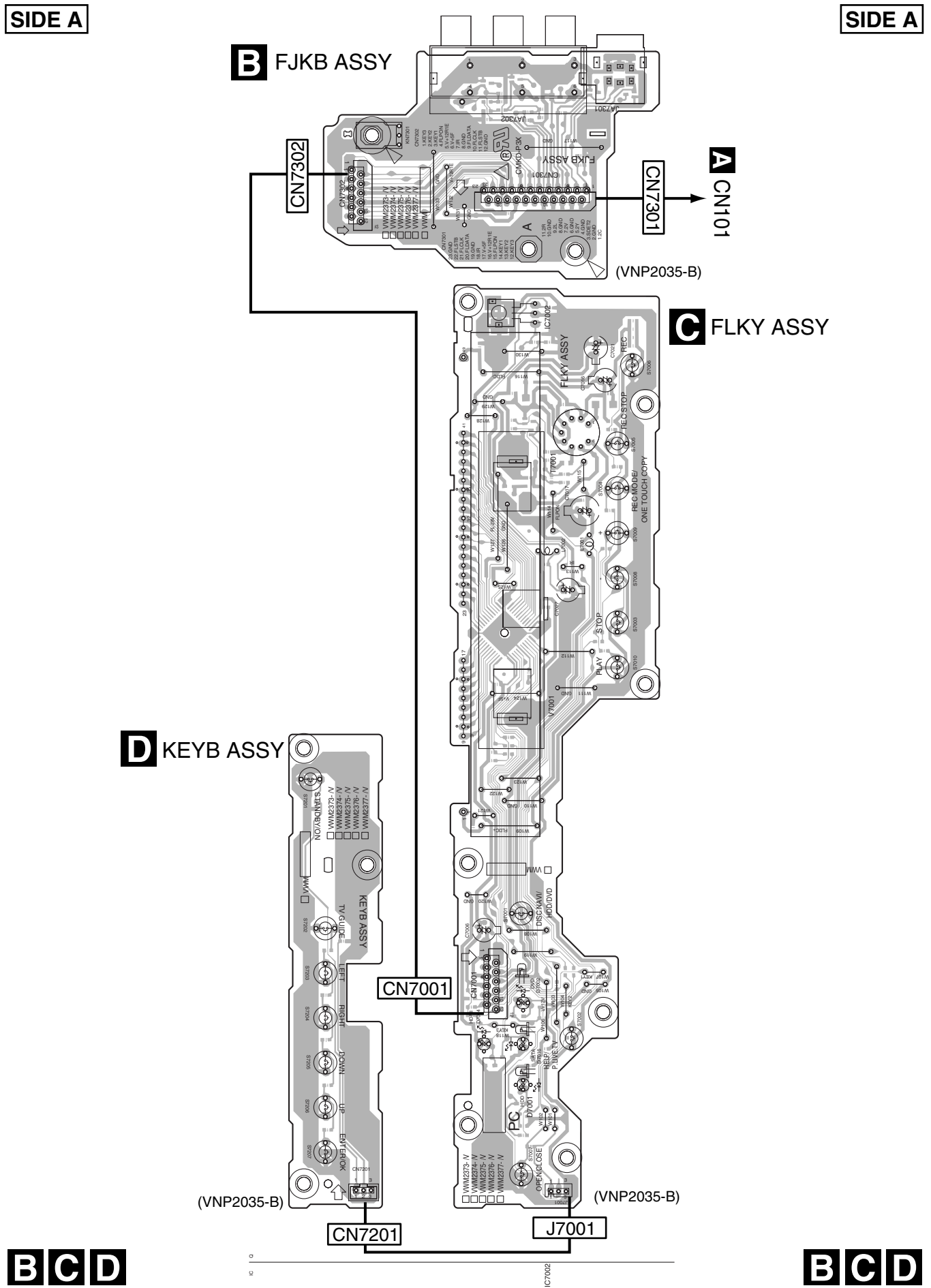


SIDE B



(VNP2032-B)

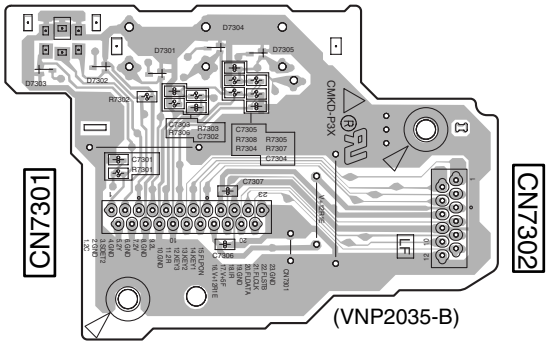
4.2 FJKB, FLKY and KEYB ASSYS



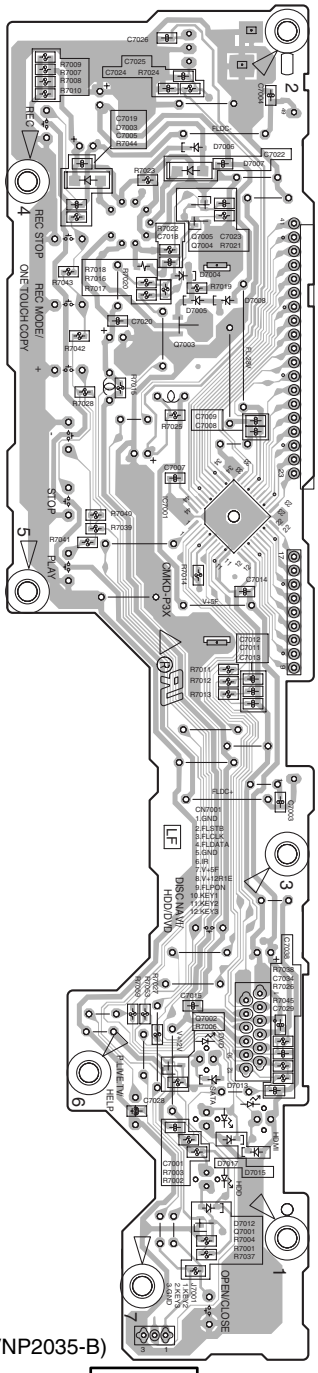
SIDE B

SIDE B

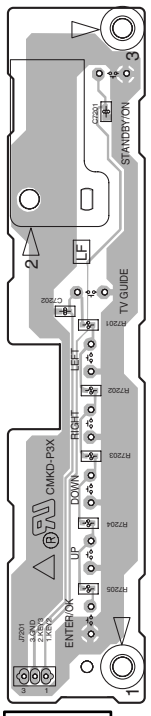
C FJKB ASSY



D FLKY ASSY



E KEYB ASSY

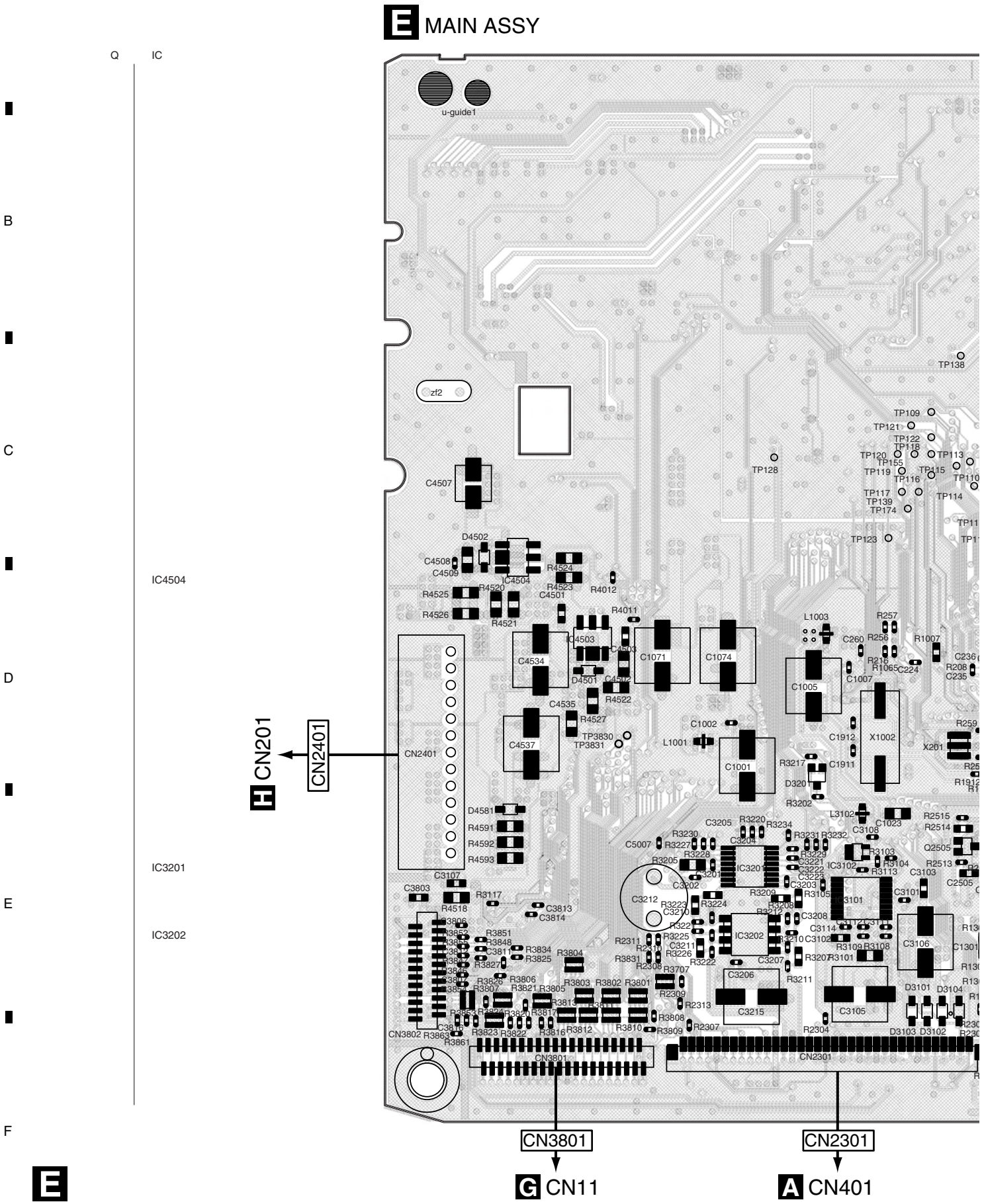


C D E

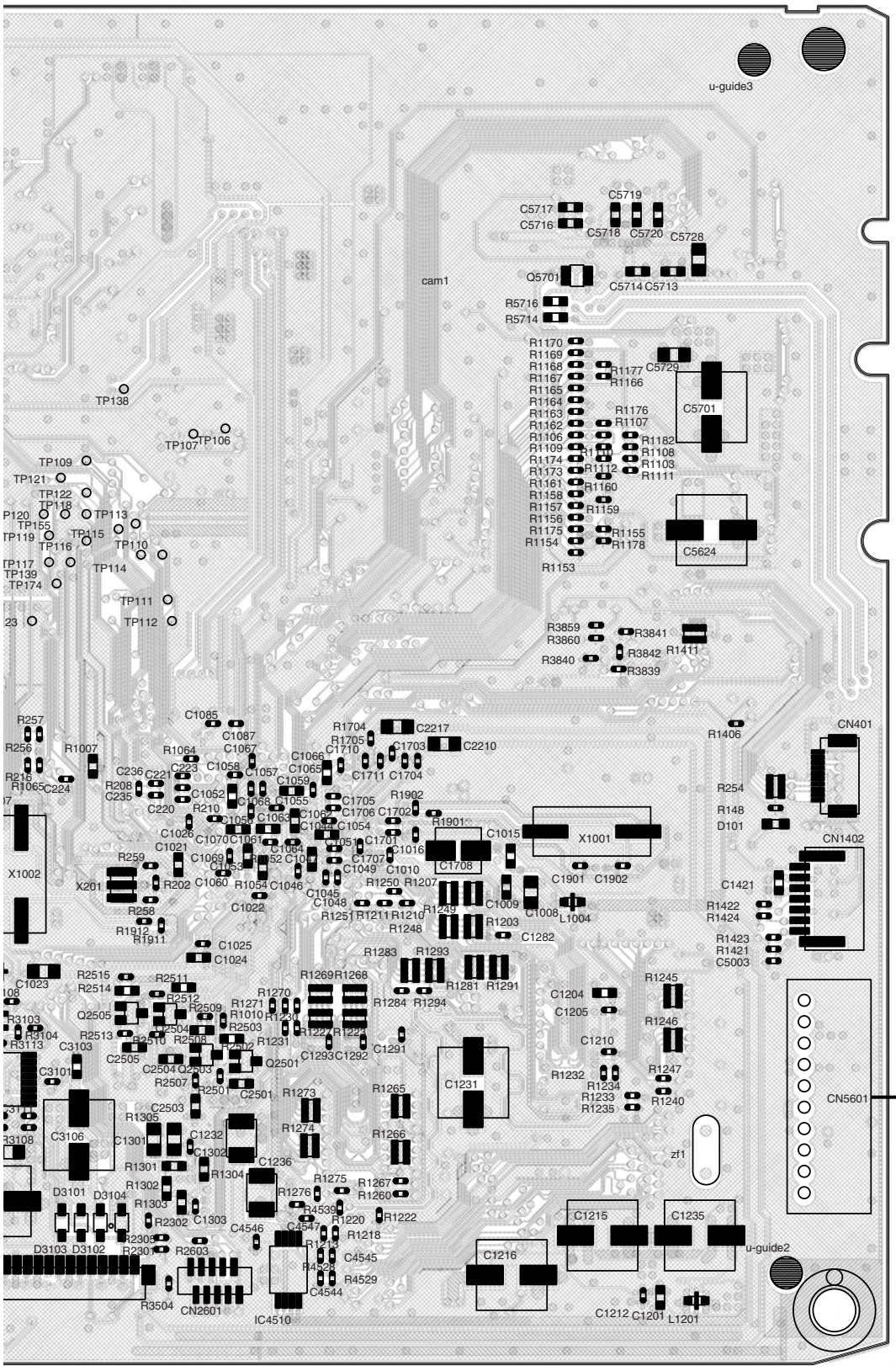
C D E

4.3 MAIN ASSY

SIDE A



SIDE A

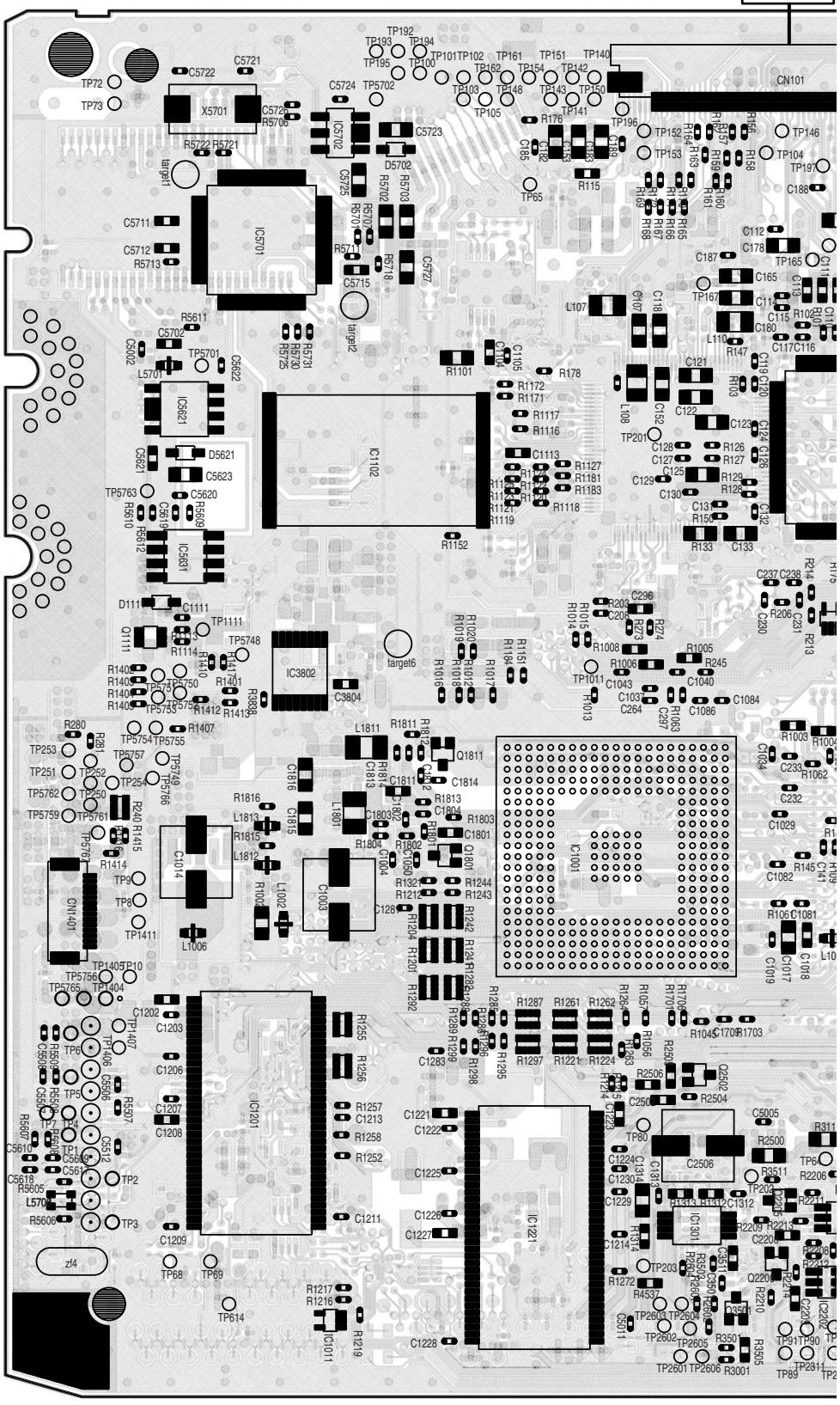


(VNP2038-A)

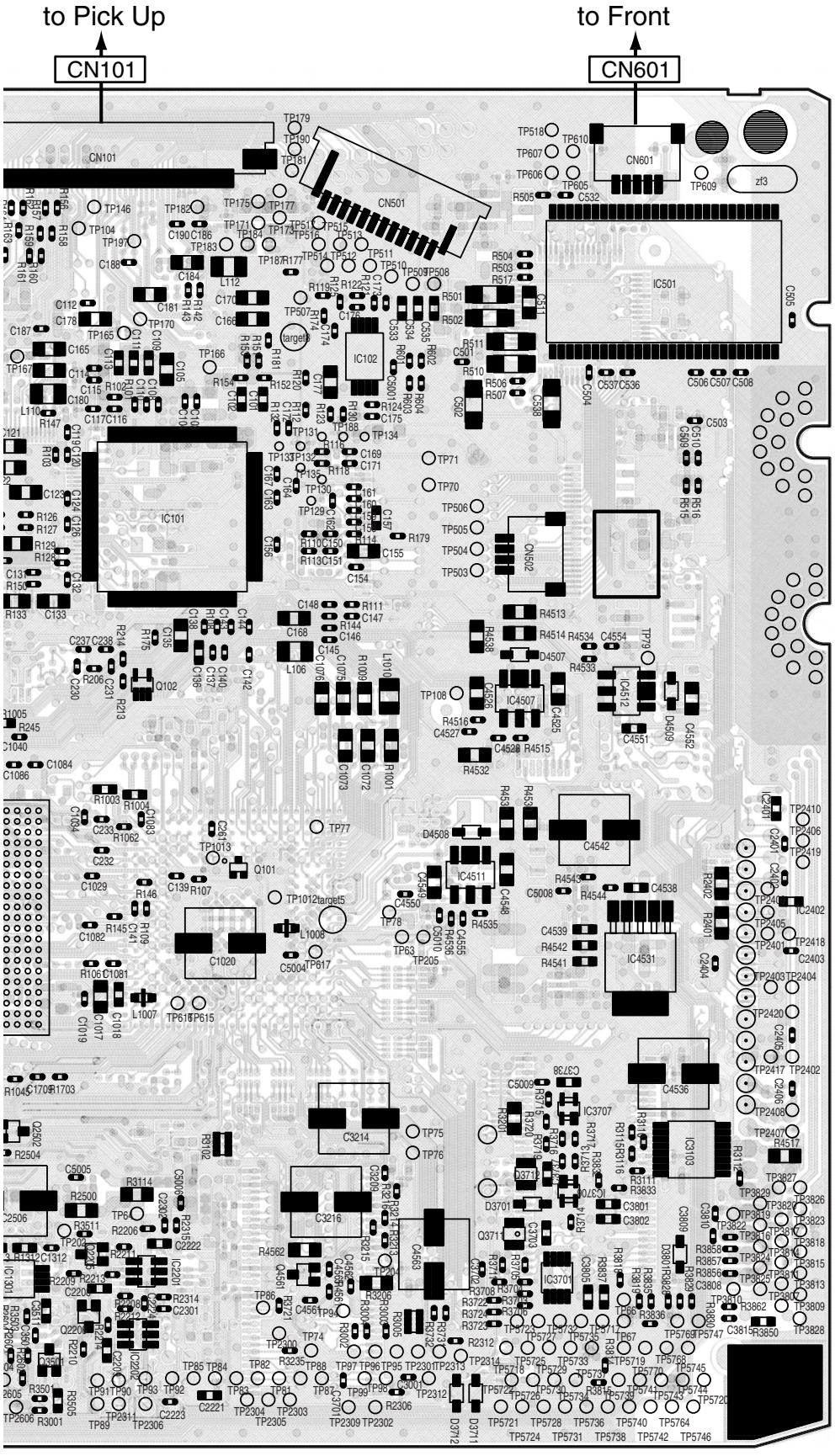
SIDE B

E MAIN ASSY

Q	IC
	IC5702
	IC501
	IC5701
	IC102
	IC5621
	IC101 IC1102
	IC5631
Q1111	IC4512 IC4507
	IC3802
Q1811	
	IC4511
Q1801	IC1001
	IC4531
Q2502	
	IC3103
Q3712	IC1201
Q3711	
Q4561	IC2201 IC1221 IC3701 IC1301
Q3501	IC2202



SIDE B



(VNP2038-B)

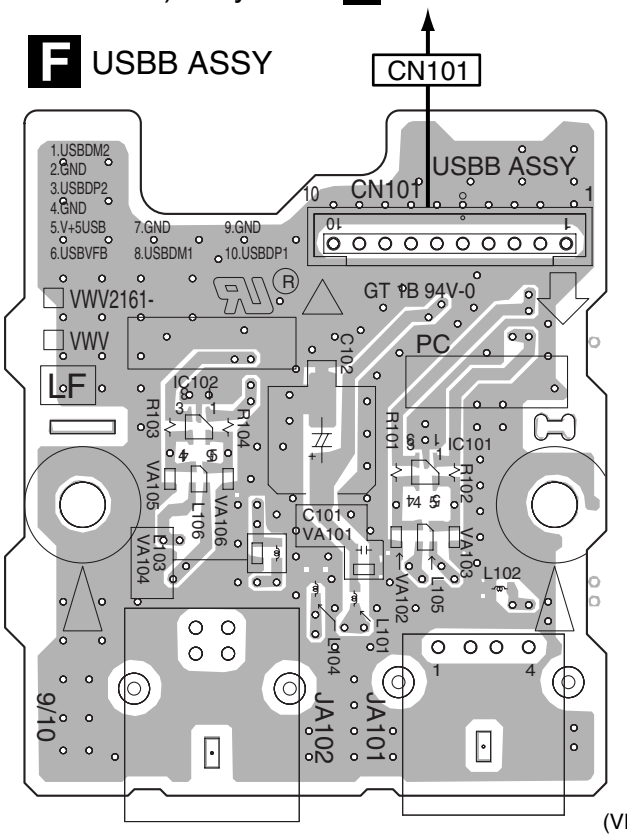
4.4 USBB ASSY (Except DVR-540H-S)

SIDE A **SIDE A**

(DVR-640H-S)
(DVR-543H-S) Only

E CN5601

F USBB ASSY



(VNP2030-A)

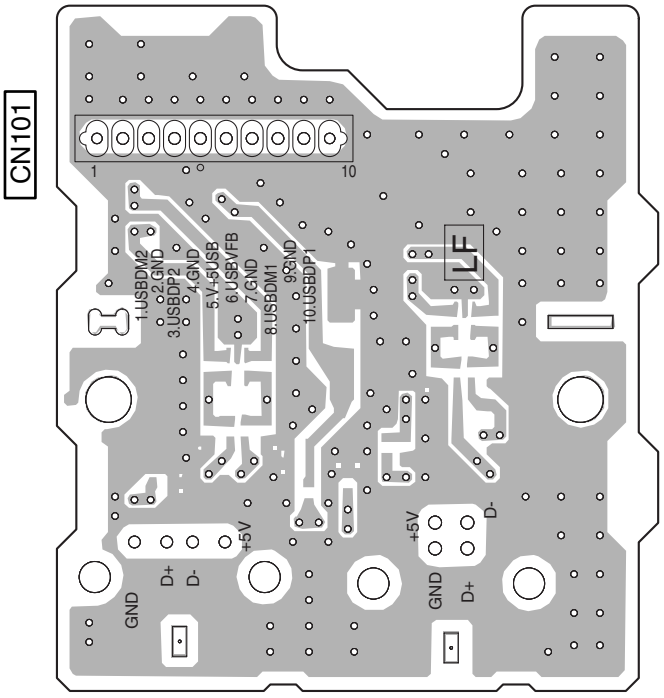
SIDE B

SIDE B

A B C D E F

F USBB ASSY

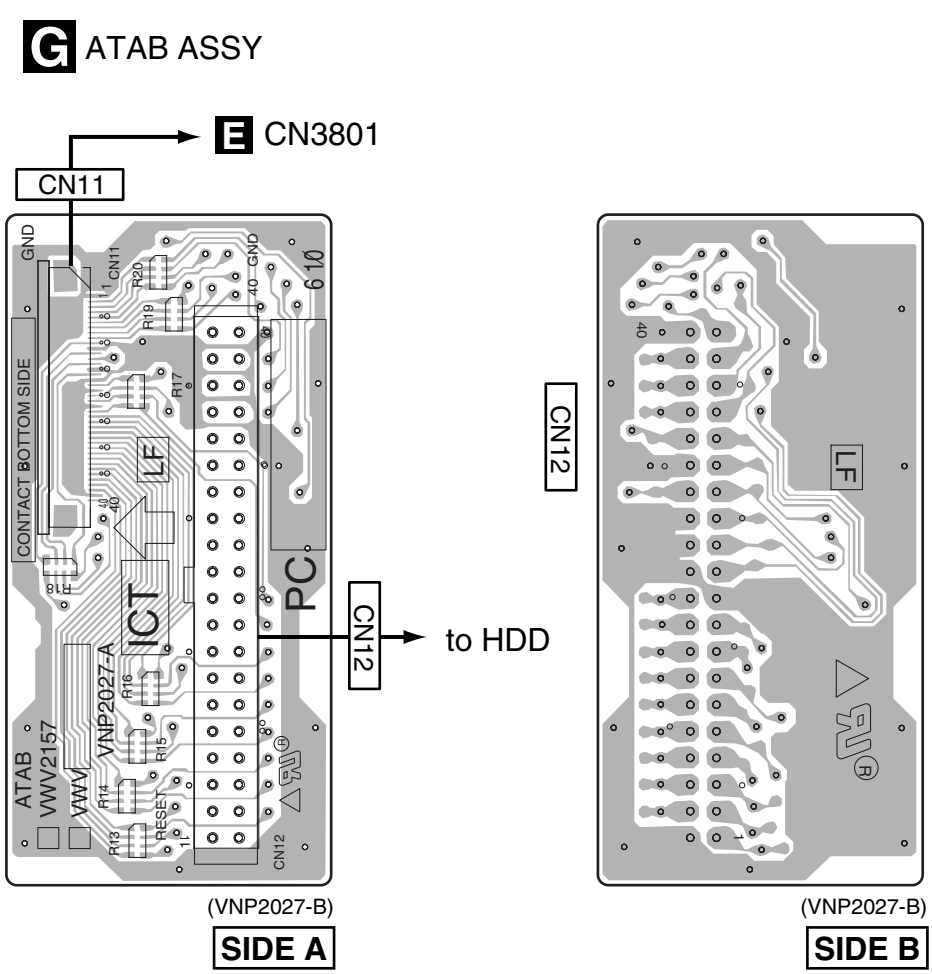
(DVR-640H-S)
(DVR-543H-S) Only



(VNP2030-A)

F F

4.5 ATAB ASSY


SIDE A
G ATAB ASSY
SIDE B
E CN3801
CN11
GND
CONTACT BOTTOM SIDE
CN11
R20
R19
R17
GND
40
LF
ICT
PC
CN12
to HDD
ATAB
VWV2157
VNP2027-A
R16
R15
R14
R13
RESET
CN12
(VNP2027-B)
SIDE A
CN12
LF
(VNP2027-B)
SIDE B

A

B

C

D

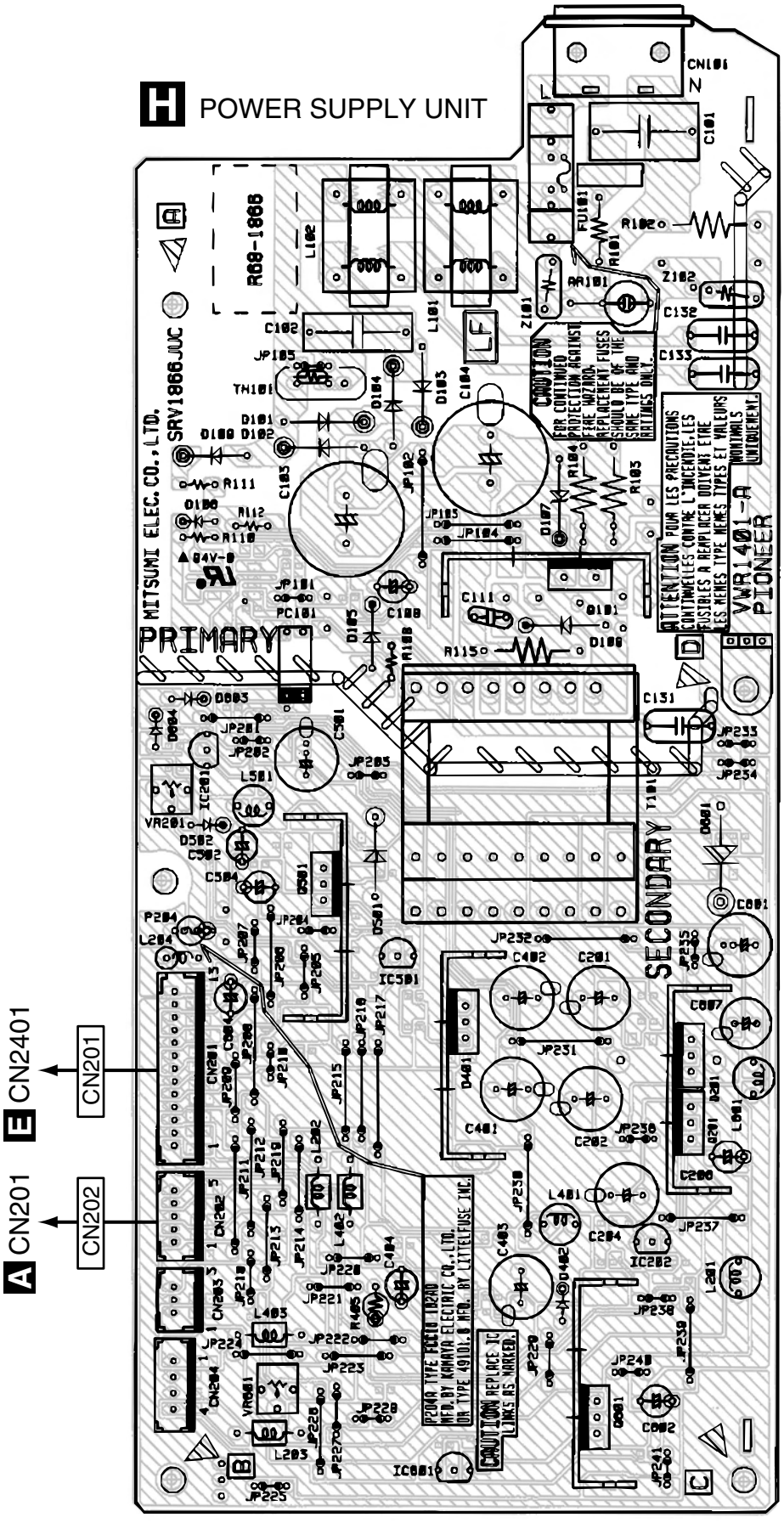
E

F

4.6 POWER SUPPLY UNIT

SIDE A

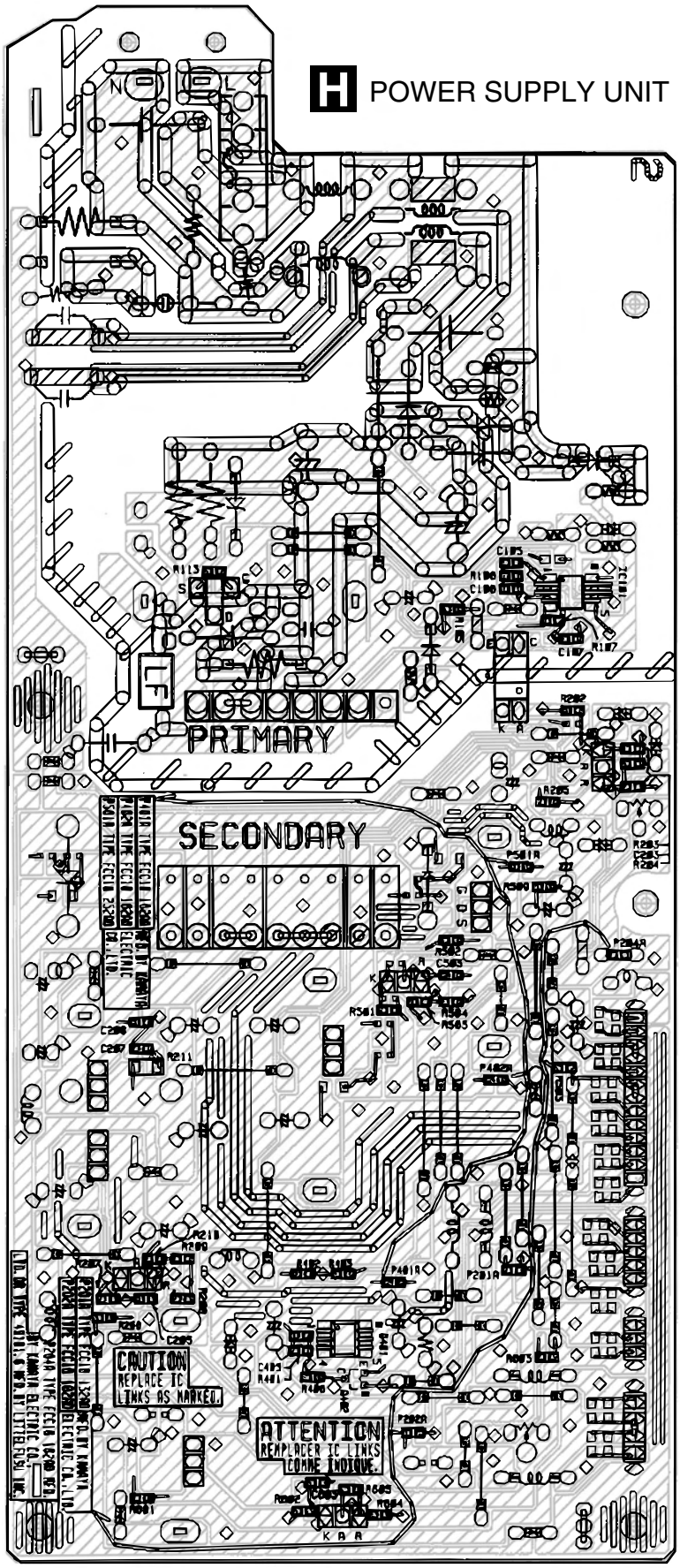
SIDE A



SIDE B

SIDE B

H POWER SUPPLY UNIT



H

H

5. PCB PARTS LIST

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
● *When ordering resistors, first convert resistance values into code form as shown in the following examples.*
Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω	→ *56 x 10[1]* →	*561*	*RD1/4PU 5 6 1 J*
47k Ω	→ *47 x 10[3]* →	*473*	*RD1/4PU 4 7 3 J*
0.5 Ω	→	*R50*	*RN2H R 5 0 K*
1 Ω	→	*1R0*	*RS1P 1 R 0 K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω	→ *562 x 10[1]* →	*5621*	*RN1/4PC 5 6 2 1 F*

LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol and Description	DVR-640H-S/DVR-543H-S	DVR-540H-S
NSP	1..TUJB ASSY	VWM2362	VWM2362
NSP	2..TUJB AI	VWV2168	VWV2168
	3..TUJB ASSY (for Service)	VXX3146	VXX3146
NSP	1..FLKB ASSY	VWM2377	VWM2377
NSP	2..FLKB AI	VWG2566	VWG2566
	3..FLKY ASSY (for Service)	VXX3111	VXX3111
	3..KEYB ASSY (for Service)	VXX3112	VXX3112
	3..FJKB ASSY (for Service)	VXX3113	VXX3113
	1..MAIN ASSY (for Service)	VXX3157	VXX3159
	1..USBB ASSY	VWV2161	Not used
	1..ATAB ASSY (for Service)	VXX3140	VXX3140
⚠	1..POWER SUPPLY UNIT	VWR1401	VWR1401

A TUJB ASSY

SEMICONDUCTORS

Mark No.	Description	Part No.
	IC0201	BD3823FV
	IC0102	BD4846G
	IC0501	BH7868FS
⚠	IC1001, IC5001	CEK1278
	IC0301	LA73031V
	IC0101	PMC007A8
	Q0403	2SA1036K
	Q0304, Q0305, Q0351, Q0361, Q0603	2SA1576A
	Q0405, Q0406	2SC2411K
	Q0362, Q0402, Q0416	2SC4081
	Q0415	2SC5876
	Q0101	2SD2114K
	Q0511	DTA124EUA
	Q0115, Q0404, Q0512	DTC124EUA
	Q0401	HN1A01FU
	Q0514, Q0515	HN1C03FU
	Q0503	UMD2N
	Q0411	UMF21N
	Q0410	UMF23N
	D0118	1SR154-400
	D0105	1SS352
	D0102, D0107, D0108, D0114, D0116	1SS355
	D0401-D0403, D0506, D0507	1SS355

COILS AND FILTERS

Mark No.	Description	Part No.
	L0102	ATH1109
	X0101	CSS1653
	L0602, L0603, L0621	CTF1306
	L0402	CTF1399
	L0302	LCYA101J2520
	L0104	LCYA120J2520
	L0401	LRCA331J

CAPACITORS

Mark No.	Description	Part No.
	C0353, C0364	CCSRCH101J50
	C0117, C0118, C0122, C0126	CCSRCH120J50
	C0329	CCSRCH181J50
	C0605, C0606	CCSRCH330J50
	C0140	CCSRCH331J50
	C0102, C0330	CCSRCH471J50
	C0175	CCSRCH681J50
	C0167	CEAL220M6R3
	C0128	CEAL2R2M50
	C0206, C0208, C0215-C0220	CEAT100M50
	C0223, C0224, C0226, C0427	CEAT100M50
	C0225, C0415, C0419, C0429	CEAT101M10
	C0221, C0409	CEAT101M16
	C0517–C0519, C0602	CEAT102M6R3
	C0532	CEAT1R0M50
	C0528	CEAT220M50
	C0548	CEAT221M6R3
	C0549, C0550	CEAT470M16
	C0105	CEAT471M16
	C0307, C0440, C0520, C0521	CEAT471M6R3
	C0405	CKSQYF105Z50

Mark No.	Description	Part No.
	C0202, C0204, C0507	CKSRYB103K50
	C0301–C0305, C0309-C0314	CKSRYB104K16
	C0178, C0402, C0412	CKSRYB105K16
	C0130, C0320, C0351, C0352	CKSRYB105K6R3
	C0362, C0363, C0508, C0509	CKSRYB105K6R3
	C0511, C0512	CKSRYB105K6R3
	C0601	CKSRYB222K50
	C0623, C0624	CKSRYB472K50
	C0103, C0104, C0109-C0111, C0116	CKSRYF104Z25
	C0119, C0125, C0132, C0139, C0170	CKSRYF104Z25
	C0176, C0211, C0212, C0222, C0306	CKSRYF104Z25
	C0308, C0315, C0317, C0404, C0432	CKSRYF104Z25
	C0504, C0505, C0513, C0522, C0523	CKSRYF104Z25
	C0328	CKSRYF105Z10
RESISTORS		
	R0419, R0506	RS1/10S0R0J
	R0420, R0421	RS1/10S120J
	R0240	RS1/10S330J
	R0422	RS1/10S8R2J
	R0451	RS1/16S1203F
	R0452	RS1/16S2702F
	R0201, R0202, R0208-R0211	RS1/16S75R0F
	R0302–R0304, R0520–R0523	RS1/16S75R0F
	R0525, R0526, R0529, R0530, R0532	RS1/16S75R0F
	Other Resistors	RS1/16S###J
OTHERS		
	CN0101 23P FFC CONNECTOR	9604S-23C
	CN0103 KR CONNECTOR	B2B-PH-K-S
	CN0202 KE CONNECTOR	B5B-PH-K-S
	JA0102 REMOTE CONTROL JACK	RKN1004
	BT0101 LITHIUM BATTERY	VEM1033
	JA0504 1P JACK (BLACK,NI)	VKB1159
	JA0502 3P JACK	VKB1165
	JA0103 JACK	VKB1183
	JA0503 JACK	VKB1184
	CN0102 9P FFC CONNECTOR	VKN1240
	CN0401 35P FFC CONNECTOR	VKN2025
	KN0101-KN0103 WRAPPING TERMINAL	VNF1084
	KN0106 WRAPPING TERMINAL	VNF1084
	U601 TV TUNER PACK	VXF1103

B FJKB ASSY

Mark No.	Description	Part No.
CAPACITORS		
	C7303, C7305	CCSRCH471J50
OTHERS		
	KN7301 WRAPPING TERMINAL	VNF1084
	CN7302 12P FFC CONNECTOR	9604S-12C
	CN7301 CONNECTOR	9604S-23C
	JA7301 4P MINIDIN SOCKET(S)	AKP1238
	JA7302 JACK	VKB1208

C FLKY ASSY

Mark No.	Description	Part No.
SEMICONDUCTORS		
	IC7001	PT6315
	IC7002	RPM7140-H9
	Q7004	2SA1576A
	Q7005	2SC4081
	Q7003	2SC5712
	Q7001	DTC124EUA
	D7004	1SS355
⚠	D7003, D7007	RF101L2S
	D7001	SLR-343BBT
	D7002	SLR-343DC
	D7008	UDZS13(B)
	D7005	UDZS15(B)
	D7006	UDZS2R4(B)
	D7301-D7304	UMZ6R8N
TRANSFORMERS		
⚠	T7001	VTT1171
COILS AND FILTERS		
	L7001	LAU220J
SWITCHES AND RELAYS		
	S7001-S7010	VSG1024
CAPACITORS		
	C7021	CEAL100M50
	C7016, C7027	CEAL101M10
	C7017	CEAL101M16
	C7003, C7004, C7023	CKSRYB103K50
	C7018	CKSRYB223K25
	C7001, C7007, C7014, C7015, C7020	CKSRYF104Z25
	C7026, C7028, C7034	CKSRYF104Z25
	C7008	CKSRYF104Z50
RESISTORS		
	R7018	RS1/10S221J
	Other Resistors	RS1/16S###J
OTHERS		
	CN7001 12P FFC CONNECTOR	9604S-12C
	J7001 CONNECTOR ASSY	PF03PG-B05
	V7001 FLUORESCENT TUBE	VAW1091

D KEYB ASSY

Mark No.	Description	Part No.
SWITCHES AND RELAYS		
	S7201	VSG1024
OTHERS		
	CN7201 CONNECTOR POST	B3B-PH-K

E MAIN ASSY (DVR-640H-S/DVR-543H-S)

Mark No.	Description	Part No.
SEMICONDUCTORS		
	IC3101	AK5359ET
	IC501	BD7997FS
	IC2401, IC2402	CEK1285
	IC1201, IC1221 (*) Refer to 7.1.9 (P102)	K4H511638C-UCB3
	IC5631	LM3526M-L
	IC2202	MM1501XN
	IC2201	MM1503XN
⚠	IC5621	MM1565AF
	IC1301	NJM12904V
	IC3802	PCA9557PW
	IC3201	PCM1742KE

Mark	No.	Description	Part No.
	IC3707		PST3813U
⚠	IC4512		S-1170B25UC-OTK
⚠	IC4507, IC4511		S-1170B33UC-OTS
⚠	IC4504		S-1170B50UC-OUJ
	IC3103		TC74VHC157FT
	IC3102		TC7SZ126FU
	IC3701		TC7WH34FU
	IC5701		TDOTG242-0F0C8
	IC101		UPC3345GC-YEB-A
	IC3202		UPC4570G2-A
	IC1001		UPD61272F1-107KA3A
	IC1102		VYW2366
	Q1801, Q1811, Q2205, Q2206		2SA1576A
	Q2501-Q2505		2SA1576A
	Q3501, Q4561		2SC4081
	Q101		RT1N141U
	D3201		DAN202U
	D3711, D3712		RB501V-40
	D101		SML-310YT

COILS AND FILTERS

L1010, L106, L107, L112	CHIP COIL	BTH1103
L1001, L1003, L1004, L1006-L1008		DTL1106
L1201, L3102, L5701	EMI FILTER	DTL1106
L1811		LCYA150J2520
L1801		LCYA390J2520

CAPACITORS

C1081	CCSSCH100D50
C158-C162, C1813	CCSSCH101J50
C3207, C3211	CCSSCH121J50
C1902, C1911	CCSSCH150J50
C1812	CCSSCH151J50
C1901, C1912	CCSSCH180J50
C1803	CCSSCH221J50
C169, C171, C509	CCSSCH390J50
C3501, C3808-C3810	CCSSCH470J50
C1084-C1087	CCSSCH5R0C50
C510	CCSSCH620J50
C264	CCSSCH680J50
C5721, C5722	CCSSCK2R0C50
C3212	CEAT102M6R3
C1708, C4507	CEVW100M16
C2506, C3106, C3214, C3216, C4542	CEVW101M16
C4563, C5624	CEVW101M16
C1001, C1003, C1005, C1014, C1020	CEVW221M4
C1071, C1074, C1235, C5701	CEVW221M4
C511	CKSQYB105K16
C5623	CKSQYB225K10
C105, C1073, C1076, C121-C123	CKSQYB475K6R3
C125, C133, C135, C152, C153	CKSQYB475K6R3
C155, C165, C168, C178, C181	CKSQYB475K6R3
C184, C4508, C4525, C4526	CKSQYB475K6R3
C4548, C4549, C4552, C5725	CKSQYB475K6R3
C157, C2221, C2222, C4551	CKSRYB105K10
C109, C111	CKSRYB334K10
C101, C102, C136	CKSRYB474K10
C1009, C1015, C1018, C1021, C1024	CKSRYF105Z10
C1044, C1047, C1052, C1055	CKSRYF105Z10
C1061, C1062, C1065, C1070, C1113	CKSRYF105Z10
C1202, C1204, C1208, C1221, C1223	CKSRYF105Z10
C1227, C1421, C1801, C1811	CKSRYF105Z10
C2208, C2209, C2501, C296	CKSRYF105Z10
C3102, C3103, C3107, C3511, C3703	CKSRYF105Z10
C3738, C3801-C3805, C5621, C5702	CKSRYF105Z10
C5711-C5720	CKSRYF105Z10
C1010, C1016, C1019, C1022, C1025	CKSSYB102K50
C1046, C1049, C1054, C1057, C1059	CKSSYB102K50
C1064, C1067, C1068, C1207	CKSSYB102K50
C1209, C1210, C1226, C1228, C1229	CKSSYB102K50
C151, C189, C261, C4527, C4550	CKSSYB102K50
C5506, C5622	CKSSYB102K50
C119, C1205, C1206, C1224, C1225	CKSSYB103K16
C129, C130, C142, C164, C1709	CKSSYB103K16
C187, C188, C221, C2223, C2224	CKSSYB103K16
C3701, C4509	CKSSYB103K16
C1026, C1029, C103, C1034, C1037	CKSSYB104K10
C104, C1040, C1043, C112, C117	CKSSYB104K10
C124, C126-C128, C132	CKSSYB104K10
C143, C144, C150, C156, C163	CKSSYB104K10
C167, C172, C175, C2301, C2302	CKSSYB104K10
C260, C3806, C3815, C3816	CKSSYB104K10
C504, C505	CKSSYB104K10
C137	CKSSYB182K50
C145, C146	CKSSYB222K50
C224, C230, C231	CKSSYB223K16
C108, C110, C139, C141, C1802	CKSSYB331K50
C3204	CKSSYB331K50
C114	CKSSYB332K50
C116	CKSSYB333K10
C232, C233	CKSSYB471K50
C148, C220, C223	CKSSYB472K25
C147, C1804, C1814, C532	CKSSYB473K10
C297, C3208, C3210	CKSSYB681K50
C138	CKSSYB682K25
C154, C236	CKSSYB683K10
C115	CKSSYB822K16
C1002, C1004, C1007, C1045, C1048	CKSSYF104Z16
C1050, C1051, C1053, C1056, C1058	CKSSYF104Z16
C1060, C1063, C1066, C1069, C1082	CKSSYF104Z16
C1105, C1203, C1211-C1214, C1222	CKSSYF104Z16
C1230, C1302, C1303, C1312, C1313	CKSSYF104Z16
C1701-C1707, C2401-C2406, C3101	CKSSYF104Z16
C3108, C3201-C3203, C3206, C3209	CKSSYF104Z16
C4561, C4562, C4565, C501, C503	CKSSYF104Z16
C5512	CKSSYF104Z16
C113 (2.2/10)	DCG1040
C502 810/16)	DCH1165
C1008, C1017, C107, C1075, C118	DCH1201
C2210, C2217, C5727-C5729 (10/10)	DCH1201
C1215 (150/4)	VCH1246

RESISTORS

R501 (0.47/1/4W)	DCN1160
R502 (0.68/1/4W)	DCN1162
R3854	RAB4CQ0R0J
R1411, R240, R3005, R3102, R3707	RAB4CQ103J
R3801-R3806	RAB4CQ223J
R1245, R1246, R1255, R1256	RAB4CQ330J
R1265, R1266, R1273, R1274	RAB4CQ330J
R3810-R3813, R3824	RAB4CQ330J
R254	RAB4CQ473J

Mark No.	Description	Part No.
	R1241, R1242, R1248, R1249	RAB4CQ560J
	R1261, R1262, R1268, R1269	RAB4CQ560J
	R1281-R1283, R1287	RAB4CQ560J
	R3208, R3223	RN1/16SC56R0D
	R3207, R3226	RN1/16SE1502D
	R3209, R3224	RN1/16SE8201D
	R1001, R1002, R133, R2401	RS1/10S0R0J
	R4513, R4514, R4517, R4520-R4524	RS1/10S0R0J
	R4527, R4591-R4593, R5702	RS1/10S0R0J
	R1302, R1303, R1312, R1313	RS1/16S1001F
	R5714	RS1/16S1501F
	R2502, R2505, R2508, R2511, R2514	RS1/16S2000F
	R1301	RS1/16S4700F
	R1052	RS1/16S6200F
	R3505	RS1/16S75R0F
	R1054	RS1/16S9100F
	R181	RS1/16SS4701F
	R510, R511	RS1/4SA2R0J
	Other Resistors	RS1/16S###J

OTHERS

	CN502 4P CONNECTOR	DKN1288
	CN501 D-SOCKET(14P)	DKN1312
	CN601 5P CONNECTOR	DKN1402
	CN101 CONNECTOR	DKN1404
	X201 (16.93MHz) OSC	DSS1152
	CN1402 07P CONNECTOR	RKN1048
	CN5601 CONNECTOR POST	S10B-PH-K
	CN2401 KR CONNECTOR	S13B-PH-K
	CN2301 35P CONNECTOR	VKN1439
	CN401 CONNECTOR	VKN2029
	CN1401 CONNECTOR	VKN2030
	CN3802 CONNECTOR	VKN2045
	CN3801 CONNECTOR	VKN2050
	X1002 (27MHz) CRYSTAL	VSS1191
	X1001 (24.576MHz) CRYSTAL	VSS1192
	X5701 (6MHz) CRYSTAL	VSS1210

E MAIN ASSY (DVR-540H-S)

SEMICONDUCTORS

	IC3101	AK5359ET
	IC501	BD7997FS
	IC2401, IC2402	CEK1285
	IC1201, IC1221 (*) Refer to 7.1.9 (P102)	K4H511638C-UCB3
	IC1301	NJM12904V
	IC3201	PCM1742KE
	IC3707	PST3813U
⚠	IC4512	S-1170B25UC-OTK
⚠	IC4507, IC4511	S-1170B33UC-OTS
⚠	IC4504	S-1170B50UC-OUJ
	IC3701	TC7WH34FU
	IC101	UPC3345GC-YEB-A
	IC3202	UPC4570G2-A
	IC1001	UPD61272F1-107KA3A
	IC1102	VYW2365
	Q1801, Q1811, Q2205, Q2206	2SA1576A
	Q2501-Q2505	2SA1576A
	Q3501, Q4561	2SC4081
	Q101	RT1N141U

Mark No.	Description	Part No.
	D3201	DAN202U
	D3711, D3712	RB501V-40
	D101	SML-310YT

COILS AND FILTERS

	L1010, L106, L107, L112 CHIP COIL	BTH1103
	L1001, L1003, L1004, L1006-L1008	DTL1106
	L1201 EMI FILTER	DTL1106
	L1811	LCYA150J2520
	L1801	LCYA390J2520

CAPACITORS

	C1081	CCSSCH100D50
	C158-C162, C1813	CCSSCH101J50
	C3207, C3211	CCSSCH121J50
	C1902, C1911	CCSSCH150J50
	C1812	CCSSCH151J50
	C1901, C1912	CCSSCH180J50
	C1803	CCSSCH221J50
	C169, C171, C509	CCSSCH390J50
	C3501	CCSSCH470J50
	C1084-C1087	CCSSCH5R0C50
	C510	CCSSCH620J50
	C264	CCSSCH680J50
	C3212	CEAT102M6R3
	C1708, C4507	CEVW100M16
	C2506, C3106, C3214, C3216, C4542	CEVW101M16
	C4563	CEVW101M16
	C1001, C1003, C1005, C1014, C1020	CEVW221M4
	C1071, C1074, C1235	CEVW221M4
	C511	CKSQYB105K16
	C105, C1073, C1076, C121-C123	CKSQYB475K6R3
	C125, C133, C135, C152, C153	CKSQYB475K6R3
	C155, C165, C168, C178, C181	CKSQYB475K6R3
	C184, C4508, C4525, C4526	CKSQYB475K6R3
	C4548, C4549, C4552	CKSQYB475K6R3
	C157, C4551	CKSRYB105K10
	C109, C111	CKSRYB334K10
	C101, C102, C136	CKSRYB474K10
	C1009, C1015, C1018, C1021, C1024	CKSRYF105Z10
	C1044, C1047, C1052, C1055	CKSRYF105Z10
	C1061, C1062, C1065, C1070, C1113	CKSRYF105Z10
	C1202, C1204, C1208, C1221, C1223	CKSRYF105Z10
	C1227, C1421, C1801, C1811	CKSRYF105Z10
	C2208, C2209, C2501, C296	CKSRYF105Z10
	C3102, C3103, C3511, C3703, C3738	CKSRYF105Z10
	C3801-C3805	CKSRYF105Z10
	C1010, C1016, C1019, C1022, C1025	CKSSYB102K50
	C1046, C1049, C1054, C1057, C1059	CKSSYB102K50
	C1064, C1067, C1068, C1207	CKSSYB102K50
	C1209, C1210, C1226, C1228, C1229	CKSSYB102K50
	C151, C189, C261, C4527, C4550	CKSSYB102K50
	C119, C1205, C1206, C1224, C1225	CKSSYB103K16
	C129, C130, C142, C164, C1709	CKSSYB103K16
	C187, C188, C221, C3701, C4509	CKSSYB103K16
	C1026, C1029, C103, C1034, C1037	CKSSYB104K10
	C104, C1040, C1043, C112, C117	CKSSYB104K10
	C124, C126-C128, C132	CKSSYB104K10
	C143, C144, C150, C156, C163	CKSSYB104K10
	C167, C172, C175, C2301, C2302	CKSSYB104K10
	C260, C3806, C504, C505	CKSSYB104K10

Mark	No.	Description	Part No.
	C137		CKSSYB182K50
	C145, C146		CKSSYB222K50
A	C224, C230, C231		CKSSYB223K16
	C108, C110, C139, C141, C1802		CKSSYB331K50
	C3204		CKSSYB331K50
	C114		CKSSYB332K50
	C116		CKSSYB333K10
	C232, C233		CKSSYB471K50
	C148, C220, C223		CKSSYB472K25
	C147, C1804, C1814, C532		CKSSYB473K10
	C297, C3208, C3210		CKSSYB681K50
	C138		CKSSYB682K25
	C154, C236		CKSSYB683K10
B	C115		CKSSYB822K16
	C1002, C1004, C1007, C1045, C1048		CKSSYF104Z16
	C1050, C1051, C1053, C1056, C1058		CKSSYF104Z16
	C1060, C1063, C1066, C1069, C1082		CKSSYF104Z16
	C1105, C1203, C1211-C1214, C1222		CKSSYF104Z16
	C1230, C1302, C1303, C1312, C1313		CKSSYF104Z16
	C1701-C1707, C2401-C2406, C3101		CKSSYF104Z16
	C3201-C3203, C3206, C3209		CKSSYF104Z16
	C4561, C4562, C4565, C501, C503		CKSSYF104Z16
	C113 (2.2/10)		DCG1040
	C502 (10/16)		DCH1165
C	C1008, C1017, C107, C1075, C118		DCH1201
	C2210, C2217 (10/10)		DCH1201
	C1215 (150/4)		VCH1246

RESISTORS

	R501 (0.47/1/4W)	DCN1160
	R502 (0.68/1/4W)	DCN1162
	R1411, R240, R3005, R3102, R3707	RAB4CQ103J
	R3801-R3806	RAB4CQ223J
	R1245, R1246, R1255, R1256	RAB4CQ330J
	R1265, R1266, R1273, R1274	RAB4CQ330J
D	R3810-R3813, R3824	RAB4CQ330J
	R254	RAB4CQ473J
	R1241, R1242, R1248, R1249	RAB4CQ560J
	R1261, R1262, R1268, R1269	RAB4CQ560J
	R1281-R1283, R1287	RAB4CQ560J
	R3208, R3223	RN1/16SC56R0D
	R3207, R3226	RN1/16SE1502D
	R3209, R3224	RN1/16SE8201D
	R1001, R1002, R133, R2401	RS1/10S0R0J
	R4513, R4514, R4520-R4524, R4527	RS1/10S0R0J
E	R4591-R4593	RS1/10S0R0J
	R1302, R1303, R1312, R1313	RS1/16S1001F
	R2502, R2505, R2508, R2511, R2514	RS1/16S2000F
	R1301	RS1/16S4700F
	R1052	RS1/16S6200F
	R3505	RS1/16S75R0F
	R1054	RS1/16S9100F
	R181	RS1/16SS4701F
	R510, R511	RS1/4SA2R0J
	Other Resistors	RS1/16S###J

OTHERS

F		CN502 4P CONNECTOR	DKN1288
		CN501 CONNECTOR	DKN1312
		CN601 5P CONNECTOR	DKN1402
		CN101 CONNECTOR	DKN1404

Mark	No.	Description	Part No.
	X201	(16.93MHz) OSC	DSS1152
	CN1402	07P CONNECTOR	RKN1048
	CN2401	KR CONNECTOR	S13B-PH-K
	CN2301	35P CONNECTOR	VKN1439
	CN401	CONNECTOR	VKN2029
	CN1401	CONNECTOR	VKN2030
	CN2601	CONNECTOR	VKN2038
	CN3801	CONNECTOR	VKN2050
	X1002	(27MHz) CRYSTAL	VSS1191
	X1001	(24.576MHz) CRYSTAL	VSS1192

F USBB ASSY (DVR-640H-S/DVR-543H-S Only)

COILS AND FILTERS

L105, L106	COIL	VTH1054
L101-L104	CHIP FERRITE BEAD	VTL1169

CAPACITORS

C102	CEVW221M6R3
C101	CKSRYF104Z25

RESISTORS

Other Resistors	RS1/16S###J

OTHERS

CN101	CONNECTOR	B10B-PH-K
JA101	USB CONNECTOR	VKB1226
JA102	USB CONNECTOR	VKB1227

G ATAB ASSY

RESISTORS

R13-R20	RAB4C0R0J

OTHERS

CN12	40P ATA CONECTOR	VKN1816
CN11	40P CONNECTOR	VKN1818

H POWER SUPPLY UNIT

POWER SUPPLY UNIT has no service part.

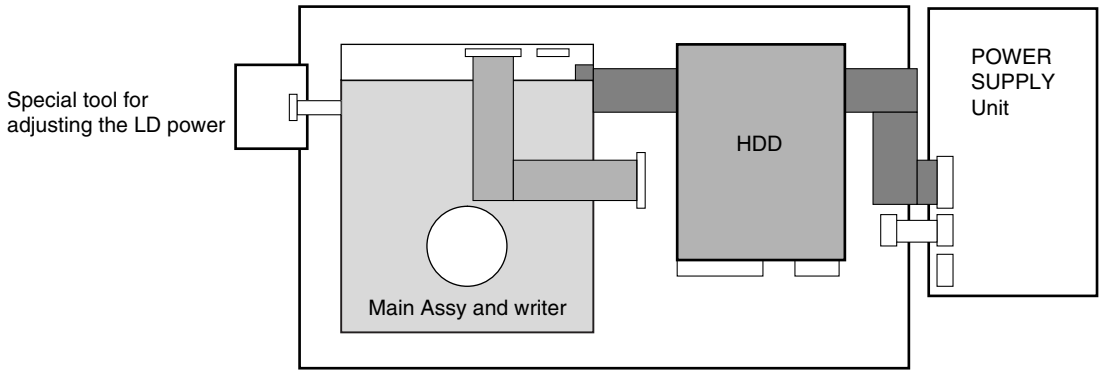
6. ADJUSTMENT

[Purpose]
If the combination of MAIN Assy and LOADER Assy is changed, the adjusted value for LD power will be shifted, and stable playback or recording of a disc will become impossible.
Therefore, when the combination of MAIN Assy and LOADER Assy is changed, LD power adjustment and adjustment for disc judgment will be necessary.
Be sure to do this adjustment at following cases.
- When replacing MAIN Assy
- When replacing LOADER Assy

[Tools to be used]
- Special tool for adjusting the LD power (GGF1559)
- 10-pin FFC flexible cable (GGD1477)
- CD-ROM test disc: CDT-313 (GGV1054)
- DVD dual-layer test disc: DVDT-002 (GGV1036)

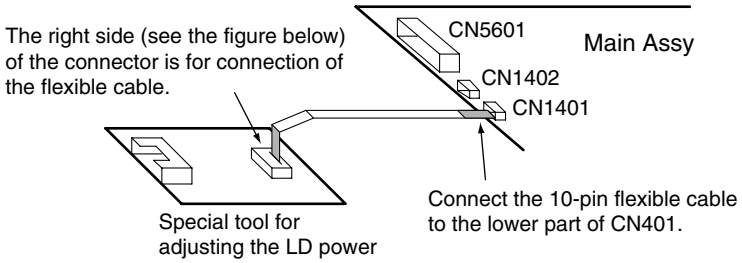
[Notes]
Never turn the power off while any of the following operations is in progress:
- While laser diode (LD) power adjustment is being performed normally by the unit
- While adjustment for disc judgment is being performed

[Connections]
- Connections for adjusting the LD power

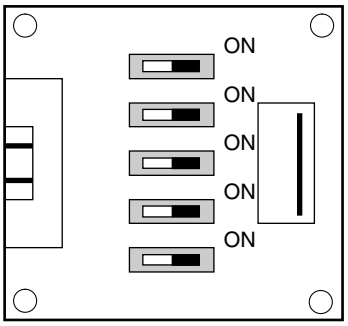


Note: Before adjusting the LD power, disconnect the power to the HDD and the flexible cable for ATA (40-pin).

- To which the special tool for adjusting the LD power is connected



- Setting of the switches on the special tool for adjusting the LD power



Set all five switches to ON.

[Procedures]

1. Connect the special tool for adjusting the LD power, as shown on the previous page.

2. Turn on the DVD recorder. ("POWER ON" will be indicated on the FL display.)

3. The tray opens.
   Make sure that powered opening of the tray is working.
   If the tray does not open under power:
   a. Flexible cables or other cables may not be connected. (Connection of cables to the HDD is not necessary.)
   b. Wrong setting of the switches on the special tool for adjusting the LD power, or failure in the special tool or the 10-pin flexible cable, is suspected.
   c. Failure in the loader, MAIN Assy, or POWER SUPPLY Unit is suspected.

   Make sure that the LED next to CN401 is lit.
   If the LED flashes:
   a. Wrong setting of the switches on the special tool for adjusting the LD power, or failure in the special tool or the 10-pin flexible cable, is suspected.

4. Manually close the tray. Adjust the LD power.
   Make sure that the LED next to CN401 is lit.
   If the LED flashes three or four times in a burst:
   a. The PU flexible cable may not be connected.
   b. Failure in the Traverse Mechanism or MAIN Assy is suspected.

5. After adjusting the LD power, invoke powered opening of the tray.
   Make sure that the LED next to CN401 flashes once per burst.

6. Load the DVDT-002 on the tray.
   The tray automatically closes after 15 seconds.
   The tray repeatedly closes and opens automatically until a disc is loaded.

7. After adjustment for judging the DVD disc, the tray automatically opens.
   Make sure that the LED next to CN401 flashes twice in a burst.
   If the LED flashes only once per burst:
   a. A disc other than the DVDT-002 may be loaded. Be sure to load the DVDT-002.

8. Replace the DVDT-002 with the CDT-313.
   The tray automatically closes after 15 seconds.
   The tray repeatedly closes and opens automatically until a disc is loaded.

9. After adjustment for judging the CD disc, the tray automatically opens.
   Make sure that the LED next to CN401 is unlit.
   If the LED flashes twice in a burst:
   a. A disc other than the CDT-313 may be loaded. Be sure to load the CDT-313.

10. Unload the CDT-313 and manually close the tray.

11. Turn off the recorder by holding the POWER button pressed for several seconds.

12. Disconnect the 10-pin FFC cable from the MAIN Assy.

13. Set the power sources for the HDD and the flexible connecting cable for ATA (40-pin) to their original statuses.

[Points to be confirmed]

1. Make sure that real-time recording on a DVD-R/-RW/RAM will finish normally.
2. Play back a recorded disc and make sure that playback is performed without a problem.

7. GENERAL INFORMATION

7.1 DIAGNOSIS

◆ Jigs and Tools to be used

Remote control unit for serving (GGF1381)
DVD Recorder Data Disc (Type 2)(*)
Download disc
Test disc (GGV1025)
DVD-RW (Commercial goods)

(*) Be sure to use the latest disc (Type 2).
In April, 2006, the latest disc is GGV1238.

◆ Service Mode List

1. Setting type

Item	When to perform
7.1.1 Model setting	• When replacing MAIN ASSY or TUJB ASSY.
7.1.2 CPRM ID number and data	• When "CPRM ERROR" is displayed on the display screen. • After the MAIN ASSY or HDD replaced.
7.1.3 Firmware downloading method	• After model setting (After replacing MAIN ASSY, TUJB ASSY). • After the HDD is replaced. • When NG is displayed for the version infomation in Service mode.
7.1.4 Video Adjustment for Specific Area	• When a flicker appears on the tuner display like a horizontal or vertial out-of-sync symptom
7.1.5 (4) OSD Filter Setting	• When a character flicker appears on the OSD depending on the monitor.

2. Diagnosis type

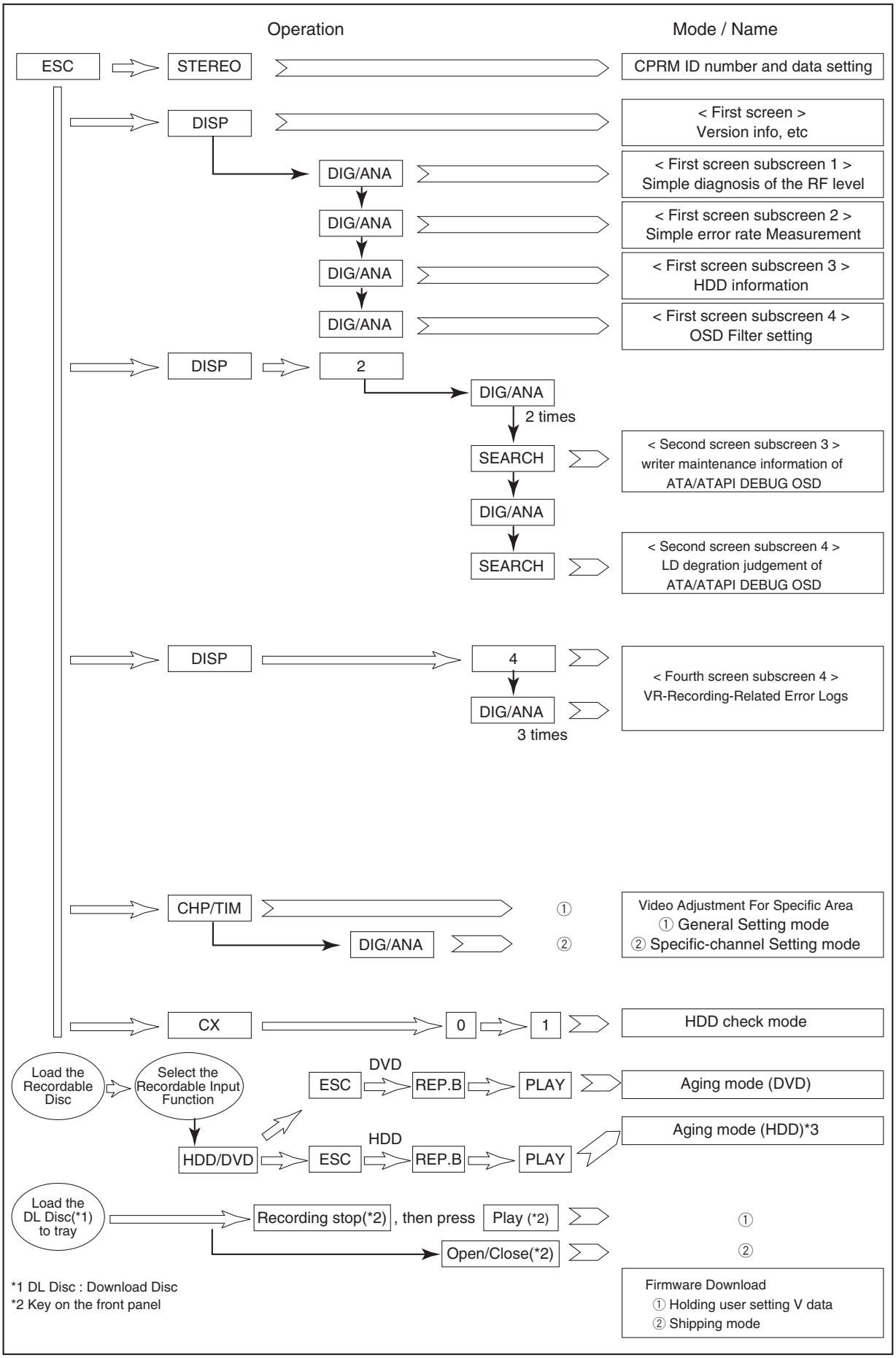
7.1.5 Service Mode First screen : Version, Simple diagnosis of the RF level, Simple error rate measurement, HDD information. Second screen : ATA/ATAPI debug screen, LD degration judgement Fourth screen : VR-recording-related error loss	• When confirming version infomation • When confirming the state of DRIVE Assy.
7.1.6 Aging Mode	When a claimed sympton is difficult to reproduce.
7.1.7 HDD Check Mode	When checking the quality of HDD.

◆ Necessary procedure List when replacing Assys

Following is the surely necessary procedures and the produet state after changing when replacing next ASSYs.

Replaced ASSY	Necessary setting	State after replacing	
		User setting	HDD contents
MAIN ASSY TUJB ASSY	1. Model setting 2. LD power adjustment 3. CPRM setting 4. Firmwave download	×	○
HDD	1. CPRM setting 2. Firmwave download	○	×

◆SERVICE MODE MAP



7.1.1 MODEL SETTING

[Purposes]

When the MAIN Assy and/or TUJB Assy that are(is) commonly used with another model are(is) replaced, they(it) must recognize the model of this unit.

Items to be set: The model number, destination, and region No. must be set.

[Tool to be used]

Remote control unit for servicing
(GGF1381)

[Notes]

- Once the setting has been made, it can never be changed. Be sure to make the setting correctly.
- As this setting resets the Assy(s) in question to the factory-preset status, it is recommended that you obtain the customer's consent beforehand.

[Procedures]

① After power on, the following screen is displayed on TV monitor. Press four digits properly (for example " 0205 ") by using the remote control unit for service, according to the screen information.

```
[Recorder's Model Setting]
 Input the number using the remote for Service.

>- - -

  Input No.      Model
   [ 0205  :  DVR-540H/KUC ]
   [ 0305  :  DVR-640H/KUC ]
   [ 0405  :  DVR-543H/KUC ]
```

② Disconnect then reconnect the AC power cord of the unit. Be careful not to impart vibration to the unit immediately after the AC power cord is disconnected.

③ Reset the recorder to all its factory settings.
(Make sure that the recorder is on. Press and hold ■ (STOP) key and press ⏻ (STANDBY/ON) key on the front panel.)
The recorder turns off with all settings reset.

④ Press [ESC] then [DISP] keys by using the remote control unit for servicing, and then confirm each Model Name (for example " DVR-540H/KUC ").

```
DVR-540H/KUC        VERSION : 1.**
  SYSCON    : RELEASE_100
              Rev     :1.1000
TUNERCON    : 198.000                    OK
    DRIVE   : DVD-RW DVR-L11X            OK
              1.00                       OK

     HDD    : WDC WD800BB-xxJKCx         80


  DEVICE    : E2R-FE 1.2     FLASH  : 64M
  REGION    : 1              C : * * * * * * * * *
```

⑤ End

7.1.2 CPRM ID NUMBER AND DATA SETTING

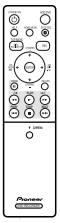
[Purposes]

For the DVD recorder,it is necessary with the recoding/playback of DVD–RW disc to set an individual number (ID number) and ID data to each recorder. If the number and data are not set correctly with the following procedure, cannot work with residual quantity 0:00 or operations in the future may not be guaranteed with RW disc. You will find the ID number to be set on the ID label on the rear panel.

The Input is Necessary When:

- " CPRM ERR" is displayed on the FL display immediately after the power is turned on or in Stop mode.
- When the MAIN ASSY or the HDD is exchanged.

[Tools to be used]



Remote control unit supplied with the unit (VXX3095)

Remote control unit for servicing (GGF1381)

DVD Recorder Data Disc (Type 2)

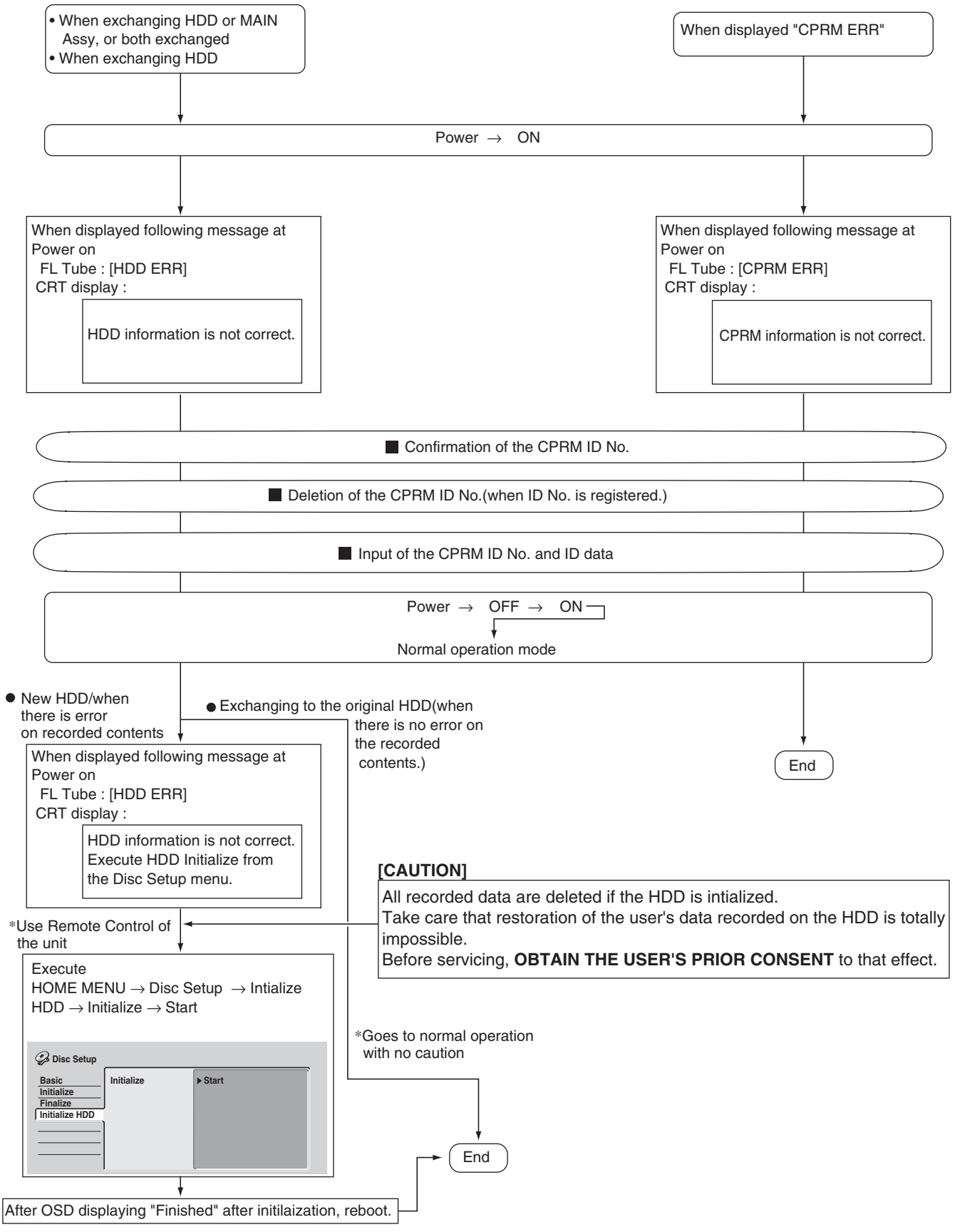
Be sure to use the latest disc (Type 2).
In April, 2006, the latest disc is GGV1238.

[Notes]

Important: If no ID label is found on the rear panel, write down the specified ID number by checking it according to "How to confirm the ID number" shown below.

- Input the ID number while the unit is in Stop mode.
- After the data are read from the data disc (Type 2), the disc will automatically be unloaded.

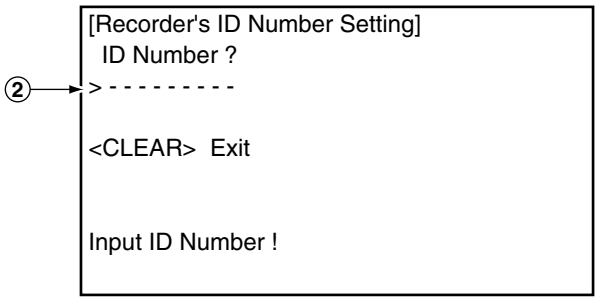
■ Input Flow of the ID No. and ID data when exchanging HDD or MAIN Assy



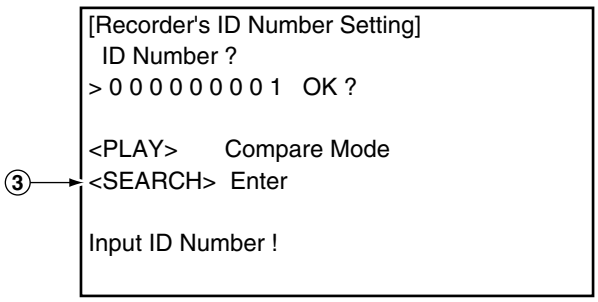
How to Input the ID Number and ID Data

① To enter the input mode, press ESC + STEREO keys sequentially in a status with no ID number set, such as after FLASH-ROM downloading.

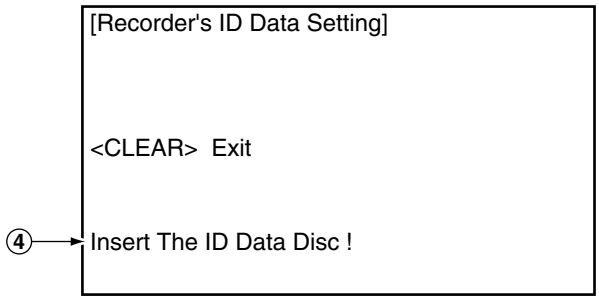
② As number input is enabled when the unit enters the input mode, input the 9-digit ID number.
(The entered number is also displayed on the FL display.)



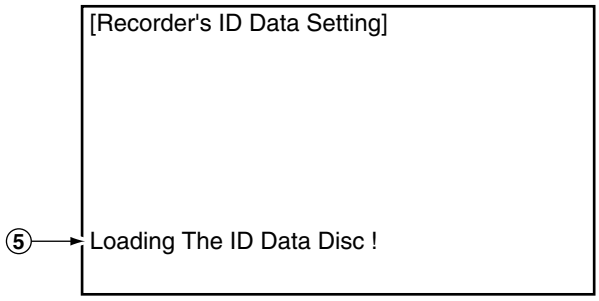
③ After inputting the number, press SEARCH keys to register the ID number.



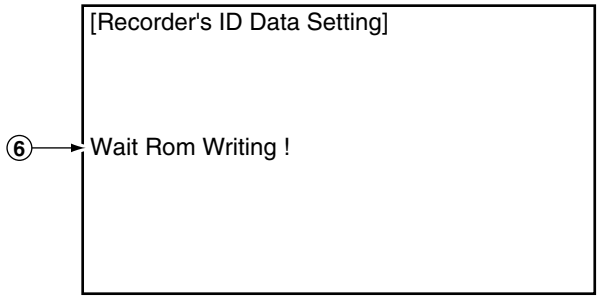
④ When the ID number has been registered, the unit enters the ID data input mode. (The FL display indicates "INSERT ID.")
In this condition, place the ID data disc on the tray and close the tray using the CLOSE key "■/⏏" on the player.



⑤ While the data are being read, the message shown in the figure at left is displayed on the screen.
(The FL display indicates "LOAD ID.")

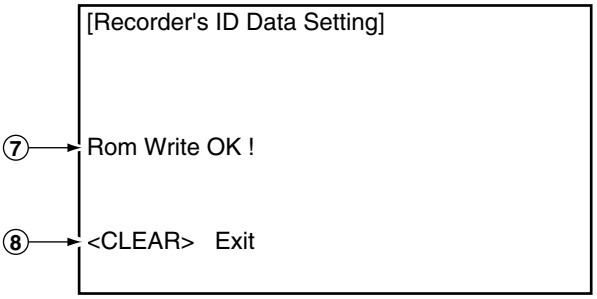


⑥ When the ID data have been read, the data are written to the FLASH-ROM.
(The FL display indicates "WRITE ID.")



⑦ When the ID data have been written to the FLASH-ROM, the message "Rom Write OK" is displayed on the screen.
(The FL display indicates "ID OK.")

⑧ After confirming this message, press CLEAR key to exit the input mode.

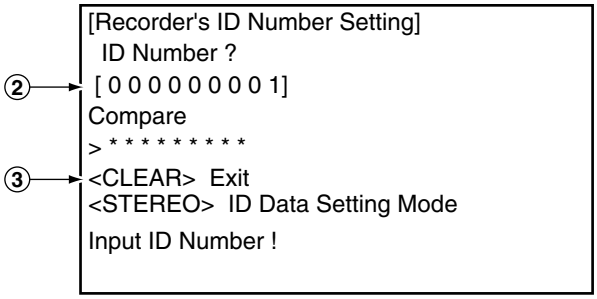


[How to Confirm the ID Number]

① Press ESC + STEREO keys sequentially with an ID number already set, and the unit enters the ID number confirmation mode.

② The set ID number is displayed on the screen (and on the FL display), permitting you to confirm it.

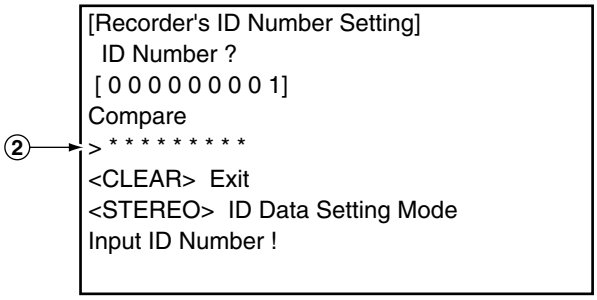
③ To exit this mode, press CLEAR key.



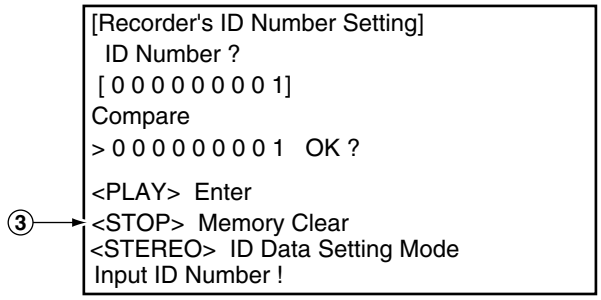
[How to Clear the ID Number]

① Press ESC + STEREO keys sequentially with an ID number already set, and the unit enters the ID number confirmation mode.

② Input the same number as the ID number you have set.



③ After inputting the number, press STOP key.
Only when the entered number matches the set ID number, the ID number is cleared and the unit exits this mode.
If the numbers do not match, you must return to step ②.
(STOP key is not accepted until 9 digits are entered.)



7.1.3 FIRMWARE DOWNLOADING METHOD

[Purposes]

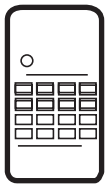
1. When the main board is replaced, the firmware versions for the system control computer, drive and the TUFL microcomputer do not match, and operations of the unit may be destabilized.
   To match the versions for the above four, firmware downloading is necessary in the following two cases:
   ① After the model setting
   ② When NG is displayed on the first screen (version information, etc.) of Service mode
   ③ After changing MAIN Assy or TUJB Assy

2. Rewriting the firmware to the latest version may ameliorate the symptoms claimed by the customer.

There are the following two methods for downloading: disc download and serial download

1. DISC DOWNLOAD

[Tools to be used]



Remote control unit for servicing (GGF1381)

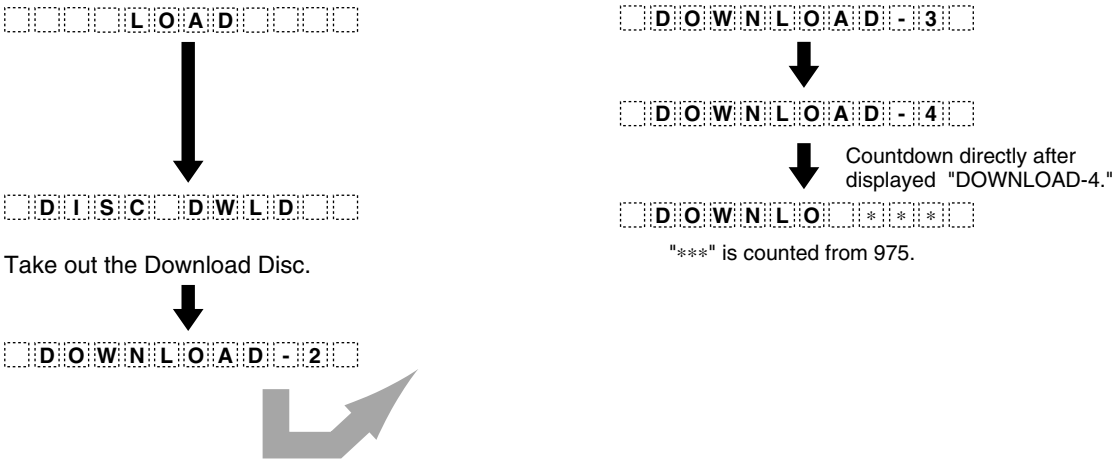
Download DISC

[Notes]

Be sure NOT to turn off the unit during downloading.
If the unit is turned off during downloading, the SYSCON, TUNERCON and DRIVE programs may not be properly rewritten, in which case the unit may not be able to initialize itself normally when turned on again.

[Procedure] ① Open a disc tray by pressing the "OPEN/CLOSE" button.
② Put the download disc on the tray. Press a " Record Stop " button while pressing a "PLAY" button on the frontpanel.
* The disc tray closes automatically and the disc is loaded.
* The disc tray opens automatically after loading.

FL display



* After download is completed, the power turns off, and turns on and a disc tray closes automatically.
* It takes for about 7-8 minutes until download is completed.

④ Press and hold a " ESC " button, then press " DISP " button on the remote control unit for servicing.
⑤ Confirm a firmware release version.
⑥ Press " ESC " button on the remote control unit for servicing in order to exit the test mode.

[Tips]

(1) If the power is not correctly turned on or when the power is shut off during downloading, proceed as follows before performing download again:

- In a case where downloading was incorrectly terminated while "DOWNLOAD-2" was displayed on the FL display:
  The SYSCON program will not function correctly.
  If the program cannot be downloaded from the disc or through serial communication, replace the MAIN ASSY.

- In a case where downloading was incorrectly terminated while "DOWNLOAD-3" was displayed on the FL display:
  The DRIVE program will not function correctly.
  If the program cannot be downloaded from the disc or through serial communication, replace the MAIN Assy.

- In a case where downloading was incorrectly terminated while "DOWNLOAD-4" was displayed on the FL display
  The program for the tuner microcomputer will not function correctly.
  If the program cannot be downloaded from the disc, replace the TUNERCON microcomputer (IC101 : TUJB ASSY).

(2) The setting way to shipping mode (Reference)
At ② lines of the [Procedures], press "OPEN/CLOSE" button while pressing REC STOP button.

2. SERIAL DOWNLOAD

[Purposes]

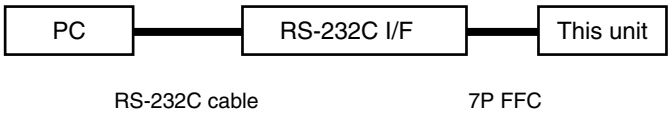
1. When the main board is replaced, the firmware versions for the system control computer, drive, and the TUFL microcomputer do not match, and operations of the unit may be destabilized. In such a case, the versions for the above three must be matched.
2. This method is used when disc downloading fails.

[Tools to be used]

* PC with serial port
* RS-232C straight cable
* RS-232C I/F jig (GGF1348)
* 7P FFC (VDA1681)
* Download program (UFU.exe)
* Firmware

[Connection]

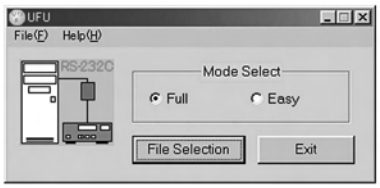
Connect as follows:



[Procedures]

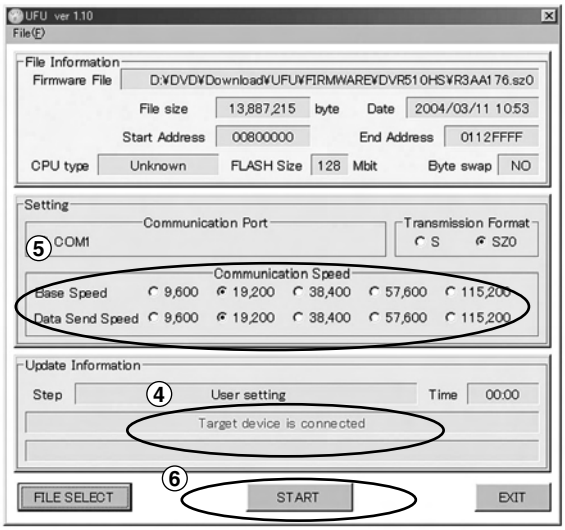
① Connect the 232C I/F jigs above way.

② Turn on the PC and start the " UFU.exe ".



③ Select the Firmware file. ("sz0" file)

④ Turn the DVD recorder on and start the download program.
" Target Device is connected " is appeared on the screen.



⑤ Select the Communication Speed (Baud Rate)
a) Base Speed 115,200
b) Data Send Speed 115,200

⑥ START
- Even if you click "START" button, sometimes "Communication Error" may come out one to twice, and download may fail.
  In this case, please click "START" again.
- Other factors can be considerd if download fails 3 times or more.
- And it takes about 20 minutes for updating the firmware.

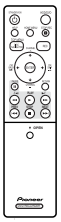
* TUNERCON program is not downloaded this way, so do disc-download for TUNERCON.

7.1.4 VIDEO ADJUSTMENT FOR SPECIFIC AREA

[Purposes]

Depending on the area, if a flicker may appear in a picture received by the tuner, it can be corrected or reduced with this setting.

[Tools to be used]



Remote control unit supplied with the unit (VXX3095)

Remote control unit for servicing (GGF1381)

1. Specific-Channel Setting mode

In this mode, specific settings can be made for up to 12 channels.
For channels that do not have specific settings, the settings of General Setting mode are applied.

[How to enter this mode]

① Select a channel or line input (L1-L3) on which a specific setting is to be made.
② Press the ESC then CHP/TIM keys on the remote control unit for servicing. "General Setting mode" is displayed.
③ Press the DIG/ANA key in General Setting mode. Specific-Channel Setting mode is entered.

[How to exit] Press the ESC key on the remote control unit for servicing to return the Normal mode.

[Note] Setting is in effect only during recording/playback stop.

[Setting examples]

The setting examples in Specific-Channel Setting mode are shown below.
For details on each setting item, see "Table 1: Key operations in Specific-Area Setting mode."

[When specific channel setting have NOT been made]

General setting data / Specific channel setting data

```
Specific Area Mode
 Input - [ TUNER ]
 Sync AGC            : ON      *
 H Threshold Level   : 12      *
 V Threshold Level   : 10      *

 EPG EQ              : OFF     *

 RGB Line Mask       : 28      *

Individual setting state
 Input Channel - [    1CH ]
 Sync AGC            : ---
 H Threshold Level   : ------
 V Threshold Level   : ---
```

[When specific channel setting have been made]

```
Specific Area Mode
 Input - [ TUNER ]
 Sync AGC            : ON      *
 H Threshold Level   : 12      *
 V Threshold Level   : 10      *

 EPG EQ              : OFF     *

 RGB Link Mask       : 28      *

Individual setting state
 Input Channel - [    1CH ]
 Sync AGC            : ON      *
 H Threshold Level   : 14
 V Threshold Level   : 7
```

[Tips]

- If a channel that does not have specific settings is displayed, the setting figures are displayed as hyphens (- -).
- If the setting figures are not displayed as hyphens, those settings have been specifically set even if they are identical to the default settings or those of General Setting mode.
- The setting indicated with an asterisk (*) is the default.
- The channels to be indicated for "Input Channel" are as shown below:
  Line inputs: L1-L3, DV (DV is not valid for specific-area settings.)
  Tuner channels: Channels received by the tuner (channels to be set in Specific-Channel Setting mode, etc.)

[Tips]

- Indication when the maximum number (12) of channels have individual settings
  If a channel that does not have specific settings is currently selected, the indication will be as shown below, and individual data items cannot be set for that channel. To set individual data items for the currently selected channel, you must clear any specific-channel settings for one or more channels.

```
Specific Area Mode
  Input - [ TUNER ]
  Sync AGC          : ON          *
  H Threshold Level : 12          *
  V Threshold Level : 10          *

  EPG EQ            : OFF         *

  RGB Line Mask     : 28          *

Individual  setting  state
  Sorry !
  You can store only 12 channels
  for Specific Area mode.
```

[H Threshold Level]
The slice level setting for the horizontal(H)-sync separation circuit can be changed. By your changing the slice level, horizontal sync disturbance may be ameliorated. Set the slice level to a value with which the least sync disturbance is seen.

[V Threshold Level]
The slice level setting for the vertical(V)-sync separation circuit can be changed. By your changing the slice level, vertical sync disturbance may be ameliorated. Set the slice level to a value with which the least sync disturbance is seen.

[Receiver sensitivity setting for an electronic program guide (EPG)]
The sensitivity when receiving an electronic program guide can be selected. Set the sensitivity to "High" only if reception is unstable.

2. General Setting mode

[How to enter this mode]

- To shift from Specific-Channel Setting mode:
  Each time the DIG/ANA key is pressed, Specific-Channel Setting mode and General Setting mode are alternately selected.

- To shift from Normal mode (recording/playback stop):
  Press the ESC then CHP/TIM keys.

[How to exit] Press the ESC key to return the normal mode.

[Setting examples]

Show setting example on the General Setting mode screen to the following.
Regarding setting of actual each item, refer to table 1 (key operations in specific-area setting mode).

[General Setting mode screen]

```
Specific Area Mode
  Input - [ TUNER ]
  Sync AGC          : ON          *
  H ThresholdLevel  : 12          *
  V Threshold Level : 10          *

  EPG EQ            : OFF         *

  RGB Line Mask     : 28          *
```

*: Setting is the default.

[Display in General Setting mode when the channel currently displayed has specific settings]

```
Specific Area Mode
  Input - [ TUNER ]
  Sync AGC          : ON          *
  H ThresholdLevel  : 12          *
  V Threshold Level : 10          *

  EPG EQ            : OFF         *

  RGB Line Mask     : 28          *

This channel is set up
  individually.
```

[Tips]

- General Setting mode can be entered only during recording/playback stop.
- The currently selected input mode (TUNER or LINE) is displayed for "Input."
- If L1, L2, L3, or DV is selected for input, general settings for the line input can be made (DV is not valid for specific-area settings), and if TUNER is selected, general settings for the tuner input can be made.

Table 1: key operations in specific-Area setting mode (1/2)
Key operations in Specific Area Setting mode of the remote control units are shown in the table below
(the keys are of the remote control unit for servicing unless otherwise stated):

Key	Operation	Switching (*: Default)	Remarks	Used in Specific-Channel Setting mode	Used in General Setting mode
[DIG/ANA]	Switches General setting mode and Specific setting mode.	–	–	○	○
[INPUT SELECT], [CHANNEL +/-] (Remote control unit supplied with this unit)	Switches inputs or channels.	–	–	○	○
[SIDE A], [SIDE B]	Sets SyncAGC.	ON(*) / OFF	ON : The sync level is set to an appropriate value. OFF : Cancel the Sync AGC.	○	○
[Rev ×3], [×3 Fwd]	Sets H Threshold.	0 – 15 (Default : 12)	[Rev ×3] : Decreasing 1 by 1 in the range 0 to 15. (Cyclic operation) [×3 Fwd] : Increasing 1 by 1 in the range 0 to 15. (Cyclic operation)	○	○
[Rev CHAPTER SKIP] [CHAPTER SKIP Fwd]	Sets V Threshold Level.	0 – 15 (Default : 10)	[Rev CHAPTER SKIP] : Decreasing 1 by 1 in the range 0 to 15. (Cyclic operation) [CHAPTER SKIP Fwd] : Increasing 1 by 1 in the range 0 to 15. (Cyclic operation)	○	○

Table 1: key operations in specific-Area setting mode (2/2)

Key	Operation	Switching (*: Default)	Remarks	Used in Specific-Channel Setting mode	Used in General Setting mode
[<<|| STILL STEP], [STILL STEP ||>>]	Sets Line Mask setting at RGB signal is inputted.	22 - 40 (Default: 28)	[<<|| STILL STEP] : Decreasing 1 by 1 in the range 22 to 40. (Cyclic operation) [STILL STEP ||>>] : Increasing 1 by 1 in the range 22 to 40. (Cyclic operation)	×	○
[PLAY]	All channels that have specific setting data will be canceled, and the specific data will be initialized.	–	The General Setting data will not be changed.	○	×
[CLEAR]	Specific-Channel Setting mode: If the currently selected channel has its specific setting, that setting will be canceled. (By canceling the specific setting for that channel, the number of remaining channels that can have specific settings will be increased by one.) General Setting mode: Settings of General Setting mode are initialized.	–	Specific-Channel Setting mode: All specific data are initialized. The General Setting data will not be changed. General Setting mode: All general setting data are reset to default. The specific setting data will not be changed (will be retained).	○	○
[PAUSE]	The specific-channel-setting data for the currently selected channel are reset to default.	–	The General Setting data will not be changed (will be retained).	○	×
[ESC]	To quit Setting mode for a specific area and clear the on-screen display.	–	–	○	○

Notes:
- Each key listed in Table 1 above is active only while the tuner is completely stopped.
- The setting values will not be reset to default even if resetting to the state at the time of shipment is performed.

7.1.5 SERVICE MODE

Overview and purposes

To be used to check the status of the product and to collect the information for failure diagnosis.
The following information to be used for servicing is displayed:
[1] First screen : Version, HDD information, etc.
[2] Second screen : ATA/ATAPI debug screen (Writer information)
[4] Fourth screen : VR-recording-related error logs

Each screen has sublevel screens.

[Note] After entering any Service mode screen, to shift to another Service mode screen, first quit that Service mode screen then enter another Service mode screen.

1. Version information, etc. (First screen)

[Purposes]

To check the versions of the system control computer, TUNER microcomputer, and firmware for the drive, simple measurement of the RF level for the U/V tuner, results of the simple error rate measuremen, HDD information, and OSD Filter setting

[Tools to be used]

Remote control unit for servicing (GGF1381)

Aluminum-coated test disc (GGV1025)

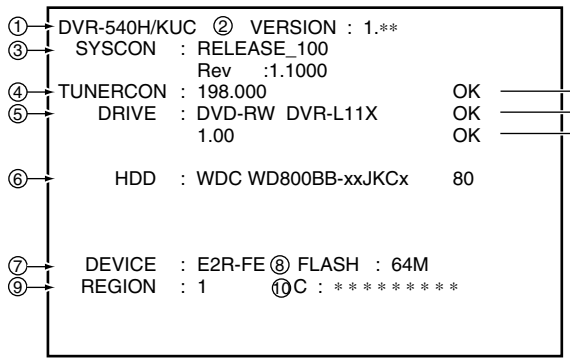
[How to enter] While the GUI screen is not displayed, press the ESC then DISP keys.

How to enter and change subscreens of the first screen: While the first screen is displayed, press the DIG/ANA key repeatedly until your desired subscreen is displayed. The subscreens change

[How to quit] Press the ESC key.

[Description]

(1) First screen



OK : Appropriate version compared with that of the firmware of the system control computer
NG- : The version of the TUNER microcomputer is older.
Measures to be taken:
• Download the firmware.

OK : The appropriate drive is mounted.
NG : An inappropriate drive is mounted.
Measures to be taken: Download the firmware.

OK : Appropriate version compared with that of the firmware of the system control computer
NG- : The version of the drive microcomputer is older.
Measures to be taken: Download the firmware.

① Model name/destination
② Version of the recorder software
③ Revision No. of the system-control computer software
④ Version No. of the tuner microcomputer
Result of the combination ckeck with system u-com
⑤ Information on the built-in drive
(Model name, version No., model type)
⑥ Data of the built-in HDD, capacity of the HDD
⑦ DEVICE information (EMMA type, ES No.)
⑧ FLASH ROM information
⑨ Region No.
⑩ CPRM information (CPRM key No.)

• Details on HDD data are described below:

HDD : WDC10234564 # 160

- Capacity of the HDD (unit: Gbytes)
- HDD identification error indication
- Name of manufacturer, part No. by manufacturer

If any abnormality exists in HDD connection, the indications shown in Table 1 below are displayed.

Table 1: HDD recognition status represented by the HDD data display

HDD identification conditions	Example of HDD data to be displayed	Remarks
Failure in physical identification of HDD (no connection, defective HDD, interface error)	Blank space	• Check the connection to the ATA connector. • Replace the ATA flexible cable and connector. • Replace the HDD. • Replace the resistor in the ATA communication line.
Physical identification of HDD possible, but not identified (CPRM ID is not input.)	WDC 10234564 # 160	• Input the CPRM ID.
Physical identification of HDD possible, HDD identified, but failure in logical formatting	WDC 10234564 ! 160	"!" represents an HDD-recognition error. • Initialize the HDD or erase all titles.
Physical identification of HDD possible, HDD identified, and correct logical formatting (HDD correctly identified)	WDC 10234564 160	

If an error indication in the HDD data does not disappear even after the above measures were taken, refer to another sheet of "HDD Service Mode."

(2) Simple diagnosis of the RF level (Subscreen 1)

[Purposes] To check the RF signal of the U/V tuner by checking the input frequency difference and AGC voltage in this debug mode

[How to enter] While the User Setting display is displayed, press the ESC, DISP, then DIG/ANA keys, in that order.

[How to quit] Press the ESC key.

[Description]

```
DVR-540H/KUC        VERSION : 1.**
  SYSCON   : RELEASE_***
             Rev     :1.******
TUNERCON   : 198.000                OK
    DRIVE  : DVD-RW DVR-L11X        OK
             1.00                   OK

     HDD   : WDC WD800BB-xxJKCx     80

   DEVICE  : E2R-FE    FLASH : 64M
   REGION  : 1         C : *********

  Input CH : ** ch
  Freq Diff: Low 1
  AGC Volt : **** mV
```

- Input channel
- Input frequency difference
- AGC voltage

Subscreen 1

1) Frequency Difference (Freg Diff)

How much tuning is off is monitored, as shown below:

Input Frequency	Display
High	High
Just Tune	Center
Low	Low 1
	Low 7

2) AGC voltage (AGC Volt)

The gain controlled by the tuner is monitored to infer the input electric field intensity.
(The accuracy of inference differs depending on the product.)

	Field Intensity	AGC VOL
Intense field area (Clear image)	70 dBμ or more	3300 mV or less
Less intense field area (Noise may be generated.)	60 dBμ or more 70 dBμ or less	3300 - 4600mV
Very weak field area (Image damaged. EPG/VPS/PDC cannot be obtained.)	60 dBμ or less	4600 mV or more

Tips:

For good reception, the field intensity must be 60 dBμ or more (AGC Volt 4600 mV or less).
For accurate measurement, use a field intensity meter.

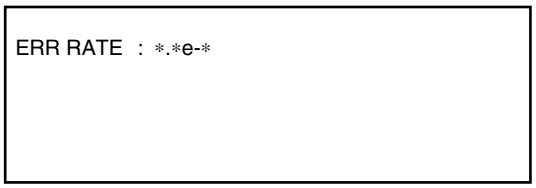
(3) Simple Error Rate Measurement (Subscreen 2)

[How to enter]
- While the User Operation screen is displayed, press the ESC then DISP keys, then the DIG/ANA key twice, in that order.
- While subscreen 1 of the first screen is displayed, press the DIG/ANA key.

[How to quit] Press the ESC key.

[Measurement procedures]

① Display subscreen 2.
② Load the Test disc (GGV1025).
③ Judge the results of the error rate measurement by referring to Table 1 on page 89.



Subscreen 2

[Tips]

During VR mode playback, the average value of the past 10 VOBUs is displayed. During DVD-Video or Video mode playback, the average value of the past 256 sectors is displayed.
During VR mode playback, the speed ratio of the drive (/: normal, no indication: double speed) is also displayed.

Table 1: Thresholds when determining OK or Error

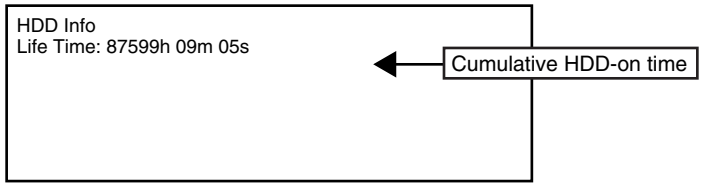
Disc type	Recording mode	Finalized or not finalized	Reference value
DVD-VIDEO	–	–	8.0×10^{-4}
DVD-R	Video mode	Finalized	1.0×10^{-3}
		Not finalized	1.0×10^{-3}
DVD-RW	Video mode	Finalized	1.0×10^{-3}
		Not finalized	1.0×10^{-3}

(4) HDD information (Subscreen 3)

[How to enter]
- While the User Operation screen is displayed, press the ESC then DISP keys, then the DIG/ANA key three times, in that order.
- While subscreen 2 of the first screen is displayed, press the DIG/ANA key.

[How to quit] Press the ESC key.

[Mode description]



Subscreen 3

[Tips]

- **How the data on cumulative HDD-on time are processed in memory**

  Storage place:
  FLASH ROM

  Timing of referring to the data on cumulative HDD-on time:
  When the power is turned on, fails, the FLASH ROM is referred to.

  Timing of updating the data on cumulative HDD-on time:
  While the HDD is on, the data on cumulative HDD-on time in the RAM is updated every 3 seconds, and every time updating is executed the data are stored in the Backup SRAM. When the power is turned off, the data are stored in the FLASH ROM.

- **How to clear the data on cumulative HDD-on time**

  FLASH ROM:
  When the HDD Identification Setting is performed, the data on cumulative HDD-on time are automatically cleared. The HDD Identification Setting is automatically performed when the CPRM setting is performed on the CPRM setting screen (to display the CPRM setting screen, press the ESC then the STEREO keys).

  Notes:
  - The data on cumulative HDD-on time are not cleared when resetting to factory-preset values is performed.
  - The data on cumulative HDD-on time are not cleared when the system-control computer software is downloaded.

(5) OSD FILTER SETTING (SUB screen 4)

[Purpose] Depending on the monitor used, the character flicker on the OSD may stand out.
If a system, such as charavter flicker, appears on the monitor, select the filter response.

[Tools to be used]

Remote control unit for servicing
(GGF1381)

[How to enter]
- While the User Operation screen is displayed, press the ESC then DISP keys, then the DIG/ANA key four times, in that order.
- While subscreen 3 of the first screen is displayed, press the DIG/ANA key.

[How to quit] Press the ESC key.

[Setting procedures]

① Display subscreen 4.
② Select the setting from the key operation table.

OSD Filter Setting

OSD FILTER : 4

Subscreen 4

[Tips]

As the setting value becomes greater, jitter is reduced on a CRT display. However, as lines for characters appear thick, complex characters may become difficult to read. On the contrary, as the setting value becomes smaller, jitter increases on a CRT display. However, as lines for characters become sharper, complex characters become more legible.

Note: Use the remote control unit for servicing.
Note: A new setting becomes active as soon as it is made. As a new setting is stored in nonvolatile memory, it will be retrieved when the unit it turned on the next time.
Note: After the factory-preset values are downloaded, the setting value for the OSD Filter will be the default value (4).

[(Table 2) Key operation of OSD Filter setting]

Key	Operation	Setting value	Remarks
[Rev x 3], [SPEED+] [x 3 Fwd], [SPEED-]	Changing the setting value for the OSD Filter	0 - 4 (Default value: 4)	[Rev x 3], [SPEED+] : The setting value increases by 1. [x 3 Fwd], [SPEED-] : The setting value decreases by 1.
[CLEAR]	The setting value is reset to default.	–	
[ESC]	To exit the OSD Filter Setting and clear the screen (Appears the tuner screen.)	–	–

2. ATA/ATAPI Debug Screen (Second screen)

[Purposes]

To be used as a rough guide to judge whether the pickup unit is all right or not

- Dirt on the pickup lens
- Degradation of the laser diodes for reading CDs and reading/writing to/from DVDs

[Tools to be used]

Remote control unit for servicing (GGF1381)

Aluminum-coated test disc (GGV1025)

[How to enter]

- While the User Operation display is displayed, press the ESC, DISP, then 2 keys, in that order.
- While any subscreen of the second screen is displayed, press the DIG/ANA key repeatedly. The subscreens change cyclically.

[How to quit] Press the ESC key.

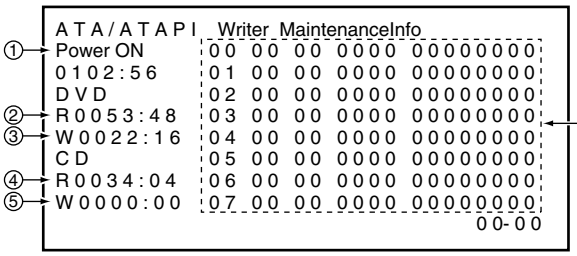
(1) Writer maintenance information of ATA/ATAPI DEBUG OSD (Subscreen 3)

[How to enter]

- While the User Operation screen is displayed, press the ESC, DISP then 2 keys, then the DIG/ANA key twice, in that order.

[How to quit] Press the ESC key.

[Procedures] Update the display by pressing the SEARCH key while subscreen 3 is displayed.



Error log for the Writer (Not for Service)

① Power-on time/cumulative power-on time
② Duration of emission of the laser diode (LD) for DVD-R/DVD while reading
③ Duration of emission of the LD for DVD-W/DVD while writing
④ Duration of emission of the LD for CD-R/CD while reading
⑤ Duration of emission of the LD for CD-W/CD while writing (This function is not used for this model.)

② If the total hours of duration of emission of the laser diode (LD) for DVDs while reading ② and that of emission of the LD for DVDs while writing ③ exceed 4,700 hours, the LDs may be degraded. Perform an LD degradation judgment, using subscreen 4.

[Tips]

MTTF hours for each LD
DVD: 4,700 hours
CD: 11,000 hours
The ATA/ATAPI Writer Maintenance Info is obtained each time the power is turned on. Thereafter, the data on the subscreen is updated each time the SEARCH key is pressed (the updating command is sent) while this subscreen is displayed. Care must be taken when updating this subscreen, because an undesired command is inserted if it is executed while recording, etc.
[Note on lighting time data for each LD]
Since data on lighting time of each laser diode (LD) are stored in the flash ROM on the MAIN Assy, after the MAIN Assy is replaced, the data will be cleared. However, after the LOADER Assy is replaced, data on lighting time of each LD will be retained in the MAIN Assy. Therefore, before either the MAIN Assy or LOADER Assy is to be replaced, it is recommended that you write down the lighting time data.

(2) LD degration judgment of ATA/ATAPI DEBUG OSD (Subscreen 4)

[How to enter]
- While the User Operation screen is displayed, press the ESC, DISP then 2 keys, then the DIG/ANA key three times, in that order.

[How to quit] Press the ESC key.

[Notes]
- For correct measurement of items ① to ④ indicated in the display below, leave the unit at room temperature (25°C) for a while before turning it on, and do not load a disc.
- For RF measurement (item ⑤), it is recommended to use the Test disc (GGV1025).
  As the RF level differs depending on the characteristics of the pickup from product to product, it cannot be used for judging degradation of the LD. Use the RF level as a rough guide to know the difference between before and after lens cleaning.

[Procedures] To update the value for each item, press the SEARCH key while subscreen 4 is displayed.
For details on each item and the conditions of updating the values, see Table 2 below.

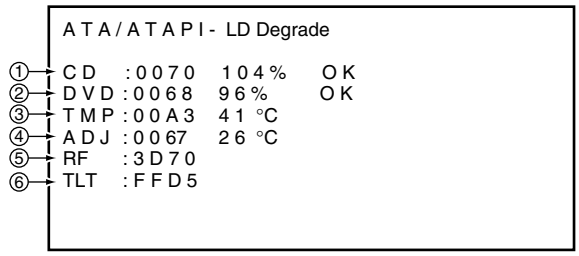


Table 2: Description of each item and conditions for updating data

No.	Item	Description	Conditions for updating by pressing the SEARCH key
①	CD	Degradation judgment of LD for CD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray
②	DVD	Degradation judgment of LD for DVD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray
③	TMP	Current temperature inside the Writer	No disc inserted in the disc tray
④	ADJ	Temperature (approx. 25°C) inside the Writer during adjustment	No disc inserted in the disc tray
⑤	RF	RF level (16-bit data, proportional calculation performed using the actual RF level value with 2.5 V = 0xFFFF as the maximum value, displayed in 4-digit hexadecimal)	During playback of disc medium (GGV1025)
⑥	TLT	Writer adjustment data for straight (non-HDD) model (FFFF is diplayed when the writer is not adjusted.)	No condition

If the results of degradation of the LDs for CDs and DVDs are both NG, replace the drive.

3. VR-Recording-Related Error Logs (Fourth screen)

[Purposes]

To roughly determine in which category shown below a symptom that is difficult to reproduce belongs.
For details on the categories of error logs displayed, see "Table 1: Description of VR-recording-related errors."

- Errors related to the MPEG Encoder
- Errors related to the drive system
- Errors related to copying
- Errors related to others
- Errors related to the HDD

[Tool to be used]

Remote control unit for servicing
(GGF1381)

[How to enter]

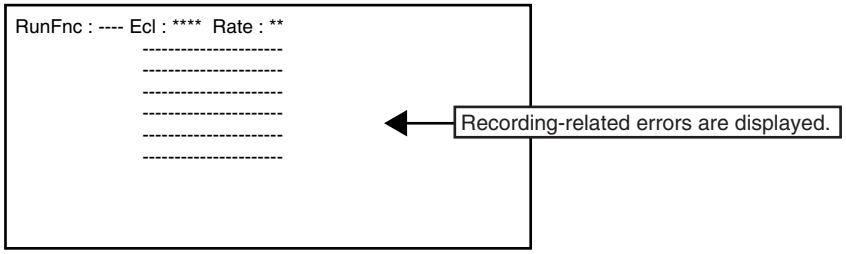
- While the User Operation display is displayed, press the [ESC], [DISP], then [4] keys, in that order.
- While any subscreen of the fourth screen is displayed, press the [DIG/ANA] key repeatedly.
  The subscreens change cyclically.

[How to quit] Press the [ESC] key.

[Description of each subscreen]

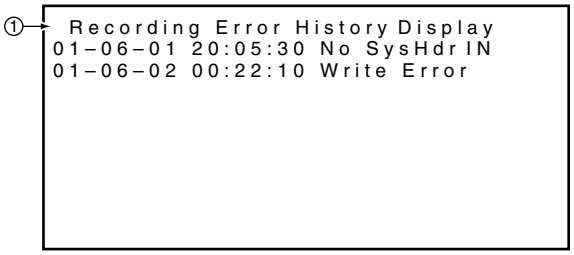
(1) VR-Recording-Related Error Logs (Subscreen 1)

- Errors related to recording are displayed on the lines "Rec Err:," as shown below.
  For details on errors, see "Table 1: Description of VR-recording-related errors."



(2) Subscreen 2 and 3 (These subscreens are not for service use.)

(3) VR-Recording-Related Error Logs (Subscreen 4)



① There are two error-log screens, on which up to 9 logs per screen are displayed.
(generation time [year-month-day, hour:minute:second], error data in simplified description)

[Tips]

- The two error-log screens can be switched by pressing the [SPEED+] or [SPEED-] key.
- For details on error messages, see Table 1 "Description of VR-recording-related errors".

(4) Subscreen 5 to 11 (These subscreens are not for service use.)

Table 1: Description of VR-recording-related errors

Any error message marked with * is displayed "RecErr : ---------" on the Subscreen 1 of the fourth screen.

● Error related to MPEG Encoder

Error Message	Description
AVEnc Hang	AVEncoder failed
IN Encode *	Changes cannot be made in the process of encoding
No SysHdr IN	System packet is not input periodically
Stm Start NG	Failure to start encoding (reasons not clear)
Stream NG	Inappropriate input stream data
Strm Start NG	Timeout waiting for system packet input at the beginning

● Error related to Drive system

In a case of an error in the drive system, scratches or dirt on a disc, or a problem of the drive itself (dirty pickup) may be suspected.

Error Message	Description
Bdr Cls NG	Close Border failed
Bdr Opn NG	Open Border failed
BUF Overflow	Overflow of the Stream Buffer
CLS Rzon Fail	Video Mode Close Rzone failure
Drive Hang	The Drive is hung up.
Drv Err	General error of the drive
Drv Hard Err	Abnormality in the drive hardware or firmware
Drv TimeOut	Timeout waiting for drive operation
Fail Repair	Repair failed
Format NG	Format failed
May Be V mode	Although TMP_VMGI is not written, it may be Video Mode disc.
Mech No Res	No response from the mechanical-control computer
MKB Invalid	MKB reading error
NWA Exhaust	NWA surpassed and impossible to use
OPC NG	OPC failed
PCA Full	PCA has been used up.
Read Err	Reading failed, ECC failed, etc.
ReadOnly DISC *	Because some data are invalid, data cannot be written
RMA Full	RMA has been used up.
Rzn Cls NG	Close RZone failed
Rzn Rpr NG	Repair RZone failed
Rzn Rsv NG	Reserve RZone failed
TMP-VMG WrErr	Video Mode TMP VMGI Write Error
VTSI_B Wr Err	Video Mode VTSI BUP Write Error
VTSI_B2 Wr Err	Video Mode VTSI BUP Write Error (After Layer Change)
VTSI Wr Err	Video Mode VTSI Write Error
VTSI2 Wr Err	Video Mode VTSI Write Error (After Layer Change)
Write Err	The Drive failed to write and could not be recovered.
May Be PVR	May be +VR disc, but no RSAT
V Final fail	Abnormal process occurred when finalizing Video mode
DLVR trace NG	Close Rzone failed at dual layer disc

RSAT : Reserved Space Allocation Table

● Error related to Dubbing

Error Message	Description
H2D CP SomeNG	Other NG HDD →DVD copy
Mem get NG	Video Mode Copy Memory has not ensured.
Strm TransfNG	Video Mode Copy Stream Transfer NG
Tracon Trn NG	Video Mode Copy Tracon tranfer has not been completed.
VC Cell Max	Maximum number for Video Mode copy Cells exceeded
VC CopyCancel	Video Mode Copy Copy Cancel
VC FlushC NG	Video Mode Copy Flush Cache NG
VC HDD C Err	Obtaining Video Mode Copy HDD Cell information failed
VC HDD Inf NG	No information on Video Mode Copy HDD
VC HDD Info NG	Format failed
VC Idling NG	Video Mode Copy idling NG
VC Pck Anl NG	Analizing Video Mode Copy Pack failed

● Error related to Dubbing (continued)

Error Message	Description
VC Transf Stp	Video Mode Copy Transfer Stop
VC TSO BLK NG	Video Mode Copy TSO Block transfer has not been completed.
VC VOBU SizeE	Video Mode Copy VOBU Size NG
V Rsv RzoneNG	Video Mode Copy Reserve Rzone failed
V2H APP FL NG	VR → HDD APP FLG is OFF
V2H Aud Ch NG	VR →HDD Audio Channel NG
V2H Aud Md NG	VR →HDD Audio Mode NG
V2H Aud Stm N	VR →HDD Audio Stream number NG
V2H SRC Prot	VR →HDD copy prohibitted material
V2H Unknown	VR →HDD other NG
V2H VOBU TMNG	VR →HDD Play back time of each VOBU is different
V2H V Reso NG	VR →HDD Video resolution NG
H2D CP NoSpac	HDD →DVD insufficient free space for copy
H2D TO HDDRD	HDD →DVD (VR) TimeOut at HDD playing side
H2D TO SPRO	HDD →DVD (VR) TimeOut at internal processing
H2D TO DVDWR	HDD →DVD (VR) TimeOut at HDD recording side

● Other Errors

Error Message	Description
Abort *	Cancellation
Already open	Extension file is already opened.
BK BATT Down	Backup RAM data has been erased.
BK FSYS Dirty	Backup RAM data has not been wrtten on the File Sys.
BUG	Some bugs
BusReset Done	Bus Reset has been excecuted.
Cell Close NG	Cell Close NG
CPRM IC NG	Inappropriate CPRM IC
Dir Depth Err	Tree of Directory is too deep.
Disc Full	No further data can be written because the disc is full.
DRAM CLR Err	Video Mode DRAM (Stream Buffer) Clear failure
DRAM NG	Abnormality in access to the Work DRAM
Drive Destroy	The drive has crashed.
EncModul Hang	Encoder routine is hung up.
F Alrdy Exst	Extension file is already exist.
File cansel	Extension file is canseled.
FileNot Exist	Extension file is not exist.
Format Excec	Formatting has been executed.
Invalid Disc *	The disc cannot be recognized.
Invalid Param *	Invalid parameter
Invalid TMVMG	Invalid TMP_VMGI content
Invalid UDF *	Invalid UDF content
Invalid VMG *	Invalid VMG content
Invalid VTSI	VTSI information of +VR is unusual.
Irr Action *	Incorrect action
MKB REVOKED	Error in gaining data
Limit Over *	Standard maximum limit exceeded
No More Info *	No more space in the internal work-management area
No Permission *	No permission to write to the disc
No Video	No video input (not locked)
Now Busy *	In the process of the emergency processing
NV Pck DMA Er	Inappropriate NaviPack DMA
NV Pck MK Err	Error in creating NaviPack
Ourob Strm NG	Inappropriate stream data to the Ouroboros input
Over Heat	Abnormal temperatute
PARAM NO ACCP	Recording parameter is not matched.
Process Over	Process is overfull.
Protect Src *	Source to be recorded is copy-protected.
Rec Pause *	No operation permitted during recording pause
Relocation Do	VR-recording data was relocated

● Other Errors (continued)

Error Message	Description
Repair Excec	Repairing has been executed.
Something *	Undetermined error
SRAM NG	Abnormality in access to the backup work SRAM
Status NG *	Abnormality in change of statuses
SW PVR	Switch to +VR playback process
SW Vpb mode *	Switching to video playback routine is required.
SW Vrec mode *	Switching to video recording routine is required.
Unmatch Stamp *	Impossible to modify because of nonmatching time stamp
VBR-SRAM NG	Abnormality in VBR SRAM
V Categ ID NG	Inappropriate Category ID
V Cate Inf NG	Inappropriate Category information
V Ext MAX Ovr	Count Max exceeded
V ExtToo Big	The extension file is too large.
V Ext TY NG	Type NG
Virgin DISC	Virgin Disc
VOBU Info NG	Inappropriate VOBU information
WaterMark Det	Watermark detected
WM Cracked	WM Cracked
Param Short	Editting Error (Clear A-B)
Invalid VRMI	Information of +VR is NG. (VRMI)

● Error related to HDD

Error Message	Description
Do nothing	Do nothing for demand.
ESFSYS CORUPT	easyfsys error
ESFSYS INIT	easyfsys initializing
HDD Buff High	High-level process executed for the HDD Buffer
HDD DEF DONE	HDD deflag finished
HDD DEF ERR	HDD deflag error
HDD Destroy	HDD is not recognized on the bus.
HDD INFO BAD	Incorrect HDD Management Data
HDD Initialize	HDD initialized
HDD IRRG POFF	Abnormal power off
HDD MBR NG	Inconsistent MBR data
HDDReset Done	HDD Reset executed
HDD ROMSUM NG	Rom-code check sum NG
HDD SIG NG	Inconsistent HDD Management Data Magic
HDD SMART NG	Inappropriate HDD SMART
HDD Trans Err	DMA error in HDD copy transfer
HDD unauthor	Inconsistent HDD serial No.
HDD Zero WR	MBR was witten
Task No Activ	Task has not been activated.
TT Rec Over	Title recording time full
HDD WRONG TGT	Invalid HDD target No. is directed.
extHDD Ignore	External HDD is dismounted.
HDD PFile NG	Program file installed in HDD is NG.
HDD DEL TT	Delete the title by HDD recovery.
HDD DEL PL	Delete the dubbing list by HDD recovery.
HDD DEL OC TT	Delete the title moving on the way inside HDD

● No Error

Error Message	Description
Non Err *	Normal

Abbreviations:

ECC = 4 byte Code for Error Correction
UDF = Universal Disc Format
PCA = Power Calibration Area
OPC = Optical Power Control
NWA = Next Writable Address
VMG = Video Manager
RMA = Recording Management Area
MKB = Media Key Block
TMP_VMGI = Temporary Video Manager Information
Border = from Lead-in to Lead-out

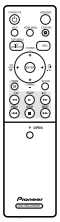
7.1.6 AGING MODE

[Purposes]

If symptoms regarding recording/ playback of discs and/or the HDD that your customer claimed are difficult to reproduce, they can be reproduced with a long-time test in Aging mode.

[Tools to be used]

Remote control unit for servicing (GGF1381)



Remote control unit supplied with the unit (VXX3095)

Commercially available, recordable DVD-R/+R and DVD-RW/+RW/ -RAM discs

[Notes]

- When aging for the DVD-RW/+RW/-RAM and HDD is executed, all recorded data on them will be erased.
- Commands from the remote control unit are accepted during Aging mode.
- If Aging mode is quit using the ESC key, indications on the FL display will return to normal display.
- Cancel timer settings before entering Aging mode.
- Set the recording rate beforehand. It cannot be changed during Aging mode.

[How to enter]

① Press the DVD key to switch to DVD.
② Load a recordable disc.
③ Select the input function of a recordable source.
④ After disc detection is performed, press the ESC then REP.B, and then PLAY keys on the remote control unit for servicing to enter Aging mode.

[How to quit]

Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode.

Notes:

- If during recording: Recording is stopped.
- If during playback: Playback is paused.
- If during initialization: The unit stops after initialization is finished. ← (aging for ±RW/-RAM only)
- If the tray is being opened/closed: The unit stops after the tray is opened/closed. ←

[Description of operation] **Aging for the DVD-RW/DVD-R**

Aging for the DVD-RW/+RW/-RAM	Aging for the DVD-R/+R
During Aging mode, the following operations are repeated in the order shown below. ① The tray opens. ② The tray closes. ③ Initialization ④ Recording for 60 minutes ⑤ Playback for 45 minutes <DVD-RW> The initialization process in step 3 follows the setting specified in "Setting of the main unit--Recording--Auto initialization of a DVD-RW." <DVD+RW> The initialization process in step 3 is the same as that described in "Disc setting--Initialization--Initialization of a DVD+RW." <DVD-RAM> In the initialization process in step 3, physical formatting is performed, if required. During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001] If an error is generated, the aging operation stops. **Note:** Indications on the FL display are retained, and this information is also retained as an OSD.	During Aging mode, the following operations are repeated in the order shown below. ① The tray opens. ② The tray closes. ③ Recording for 1 minute ④ Recording pause for 6 minutes ⑤ Recording stops. ⑥ Playback for 1 minute ⑦ Playback pause for 6 minutes ⑧ Playback stops. **Note:** A continuous test of the above operations is possible for approximately 23 hours. After ② the tray closes, disc detection is performed, <DVD-R> In step 2, if the disc is judged to have recorded up to 99 titles, the operation stops at that point. <DVD+R> If the disc is judged to have recorded up to 49 titles, the operation stops at that point. On the FL display, the number of loops is retained. On the OSD display, the error indication is retained. During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001] If an error is generated, the aging operation stops. **Note:** Indications on the FL display are retained, and this information is also retained as an OSD. **Note:** Recording time depends on the recording rate set. For example, if the recording rate is MN32, only up to 60 titles can be registered. Check the setting for recording rate before performing aging.

[Aging for the HDD]

[How to enter]

① Press the HDD key to switch to HDD.
② Press the ESC key then the REP.B, and then the PLAY keys on the remote control unit for servicing to enter Aging mode.

[How to quit]

Press the ESC key on the remote control unit for servicing to quit Aging mode and return to Normal mode.

Notes:

- If during recording: Recording is stopped.
- If during playback: Playback is paused.
- If during erasure of all memory data from the HDD, the unit stops after all memory data have been erased.

[Description of operation]

During Aging mode, the following operations are repeated in the order shown below.
① Erasure of all the memory data from the HDD
② Recording for 60 minutes
③ Playback for 60 minutes

* *Take caution as all recorded data of the HDD is deleted.*

[Tips]

During Aging, the number of loops is indicated on the FL display, as shown below.
[AGING 0001]

If an error is generated, the aging operation stops.

Note:
Indications on the FL display are retained, and this information is also retained as an OSD.

7.1.7 HDD CHECK MODE

How to diagnose failure of the hard disc drive (HDD)

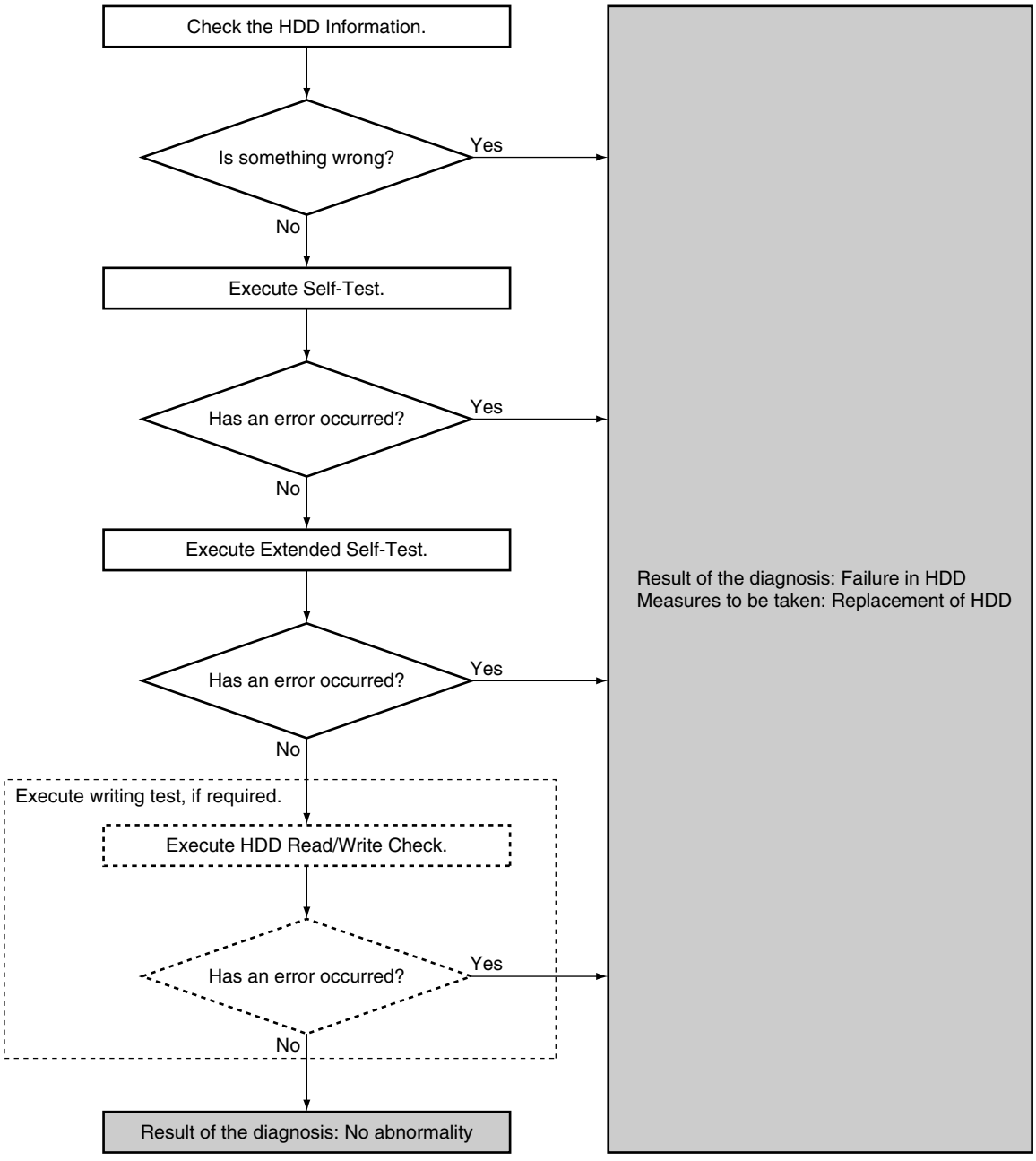
Purpose:
With use of the HDD-diagnostic program contained in the product itself, physical errors on the HDD can be diagnosed. Use this program to diagnose whether or not the HDD is in failure when one of the symptoms indicated below is recognized, or when a failure in the HDD is suspected.

Symptoms of failure in HDD:
(1) HDD Error
(2) Failure in HDD recording or playback
(3) HDD not recognized

Tool to be used:
Remote control unit for servicing (GGF1381)

1. Flow of HDD diagnosis

(1) Flowchart of HDD diagnosis



(2) Overview of the diagnosis items

HDD Information	This is a display for checking the HDD information, such as the model name of the HDD, continuous power-on time, authentication status, and results of the diagnosis on the end of service life.
SELF TEST	This is a simplified diagnosis for the HDD. A serious failure in the HDD can be detected with this test. Time required for testing: Approx. 60 sec.
EXTENDED SELF TEST	This is a reading test across all sectors of the HDD. Data recorded on the HDD will not be erased, because no writing operation is performed. Time required for testing: Approx. 2 hours/160 GB 1 hours/80 GB
HDD Read / Write Check	This is a writing, reading, and comparing test across all sectors of the HDD. **All data recorded on the HDD will be erased**, because all the data are to be overwritten. **Be sure to obtain your client's consent beforehand.** Time required for testing: Approx. 6.4 hours/160 GB 3.2 hours/80 GB

2. How to start or terminate the diagnostic program

How to start/terminate the diagnostic program

Use the remote control unit for servicing.

How to start: Press the "ESC", "CX", "0", and "1" keys simultaneously.

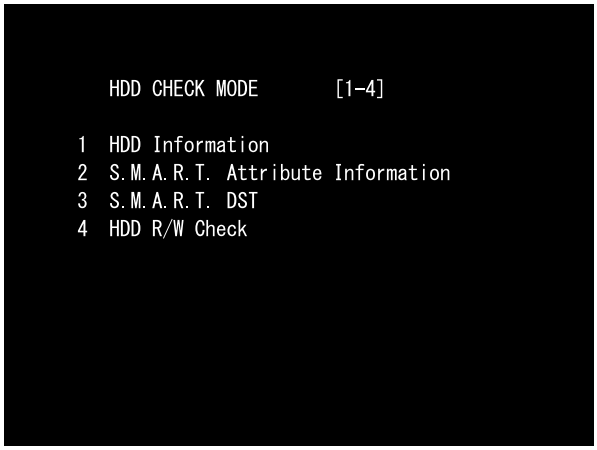
How to terminate: Press the "ESC" key.

Do NOT perform other operations on the unit while the HDD diagnosis is in progress. Although the diagnostic program is designed to function independently from the unit's functions, an operation on the unit during a diagnosis may cause a malfunction.

The status of the unit recommended during diagnosis is as follows: All stop, no timer recording (including auto-recording), and Input selection to L1-L3.

3. Diagnosis procedures

① Display the menu on the screen.
The menu indicated below is displayed when the diagnostic program is started. To enter each mode, press the corresponding key "1"-"4" on the remote control unit for servicing.



Tests to be executed
① HDD Information:
Check of the HDD information
② S.M.A.R.T. DST:
Executing a simplified test or a reading test of all data
③ HDD R/W Check:
Executing a writing/reading test of all data. All data on the HDD will be erased if this test is executed.

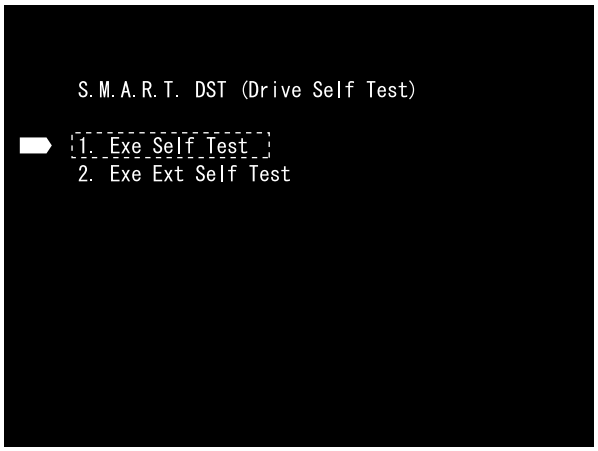
Note: "2. S.M.A.R.T. Attribute . . ." is not to be used.

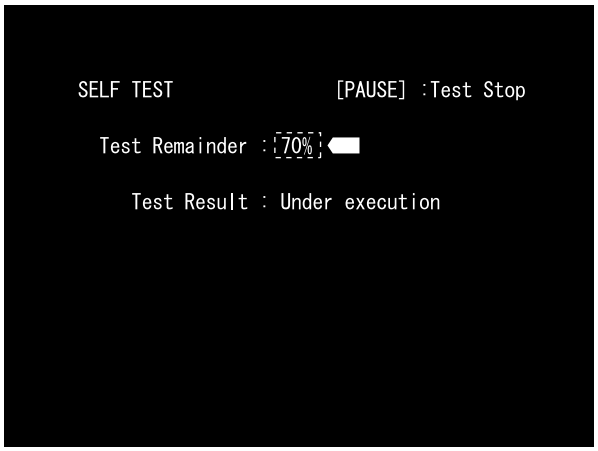
② Check the HDD information.
Press the "1" key on the remote control unit for servicing. Check the following data:
Model: Is the correct model name of the HDD displayed?
Recog. No: Is a positive value displayed?
SMART threshold: Is "not exceeded" displayed?

Detailed description
① Model:
For the correct model name, refer to the display of the unit.
② Recog. No:
Positive value: The HDD has been authenticated.
Negative value: The HDD has not been authenticated.
③ SMART threshold:
exceeded: The HDD has come to the end or near the end of its service life.
not exceeded: The HDD has not reached the end of its service life.

To return to the menu screen, press the "Clear" key.

③ Execute Self-Test.
Press the "3" key on the remote control unit for servicing while the menu screen is displayed.
When the following screen is displayed, press the "1" key to start the Self-Test.



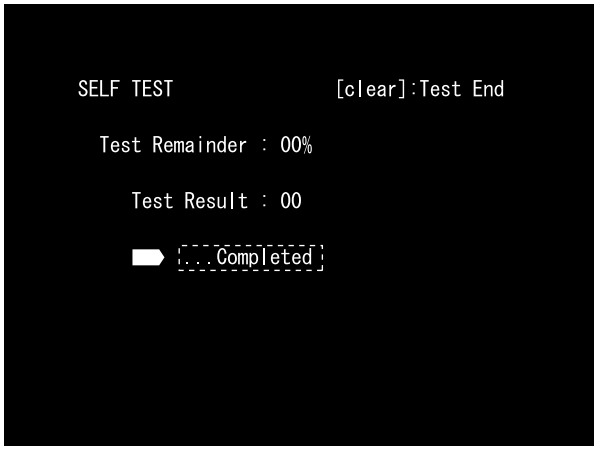


The progress of the test is displayed on the screen. The percentage remaining of the test is displayed on the screen, and the test is terminated when the percentage reaches 00%.
Check whether or not an error has occurred after the test is finished.

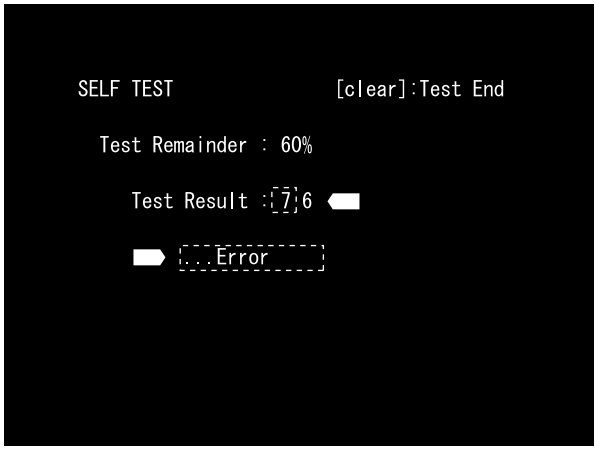
Diagnosis results
- Without an error: ". . . Completed" is displayed.
  Then, proceed to the Extended Self-Test.
- With an error: ". . . Error" is displayed. Look at the number in Test Result.
  If the place value for tens is 1 or 2, execute the Self-Test again.
  If it is from 3 to 7, the HDD must be replaced.

Note: If the result of the second test is the same, replacement of the HDD is required.

Example: No error

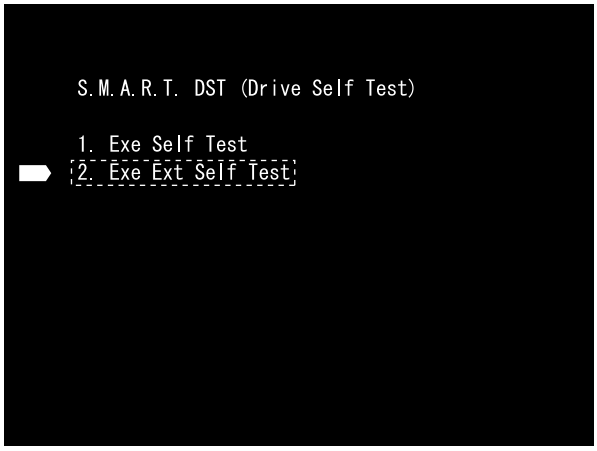


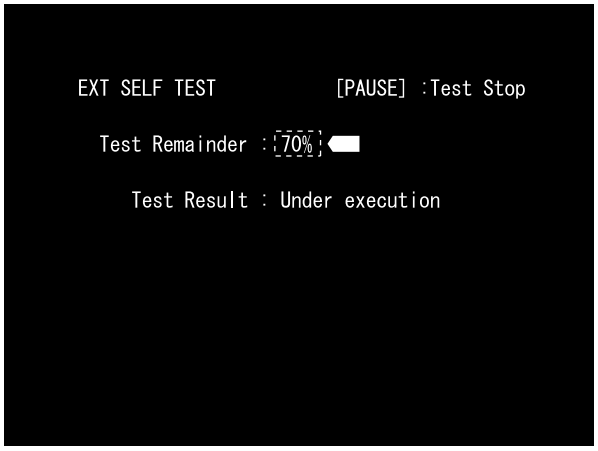
Example: With an error



To return to the menu screen, press the "Clear" key.

④ Execute the Ext (Extended) Self-Test.



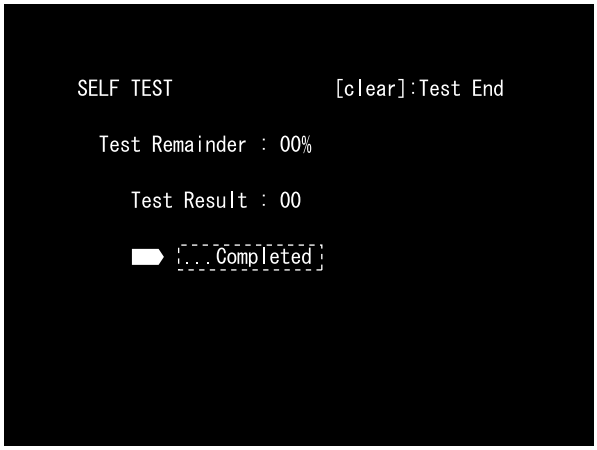


Press the "3" key while the menu screen is displayed, then the "2" key on the remote control unit for servicing. The Extended Self-Test starts. The percentage remaining of the test is displayed on the screen, and the test is terminated when the percentage reaches 00%. Check whether or not an error has occurred after the test is finished.

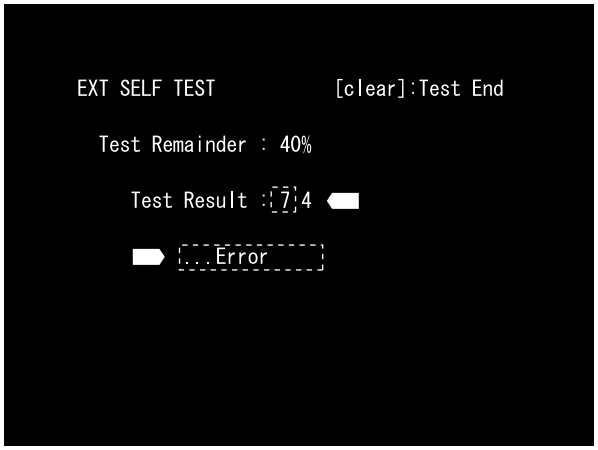
Diagnosis results
- Without an error: ". . . Completed" is displayed.
  If no error occurs up until this stage, HDD operations are normal except for writing operations.
  If the unit has a failure in HDD playback, a block other than the HDD may be in failure.
  If the unit's failure is in HDD recording, however, the next HDD Read/Write Check must be executed to test writing operations.
- With an error: ". . . Error" is displayed.
  Look at the number in Test Result.
  If the place value for tens is 1 or 2, execute the Ext Self-Test again.
  If it is from 3 to 7, the HDD must be replaced.

Note: If the result of the second test is the same, replacement of the HDD is required.

Example: No error

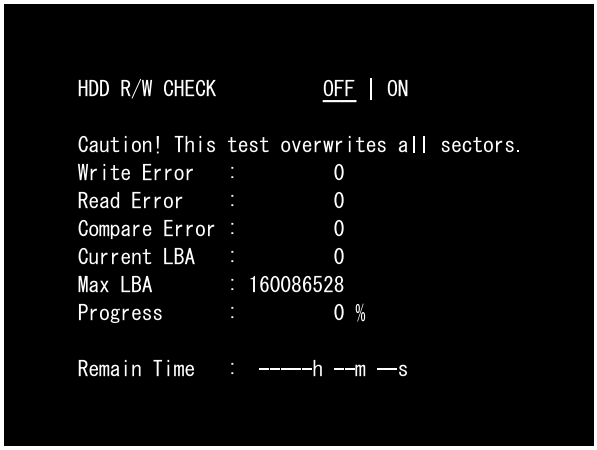


Example: With an error

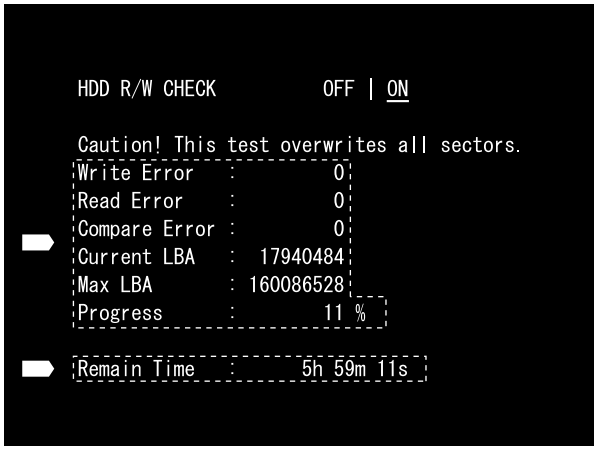


To return to the menu screen, press the "Clear" key.

⑤ Execute the HDD R/W Check.
Before executing this test, **be sure to obtain your client's consent for erasure of HDD data**.
Press the "4" key while the menu screen is displayed then the "SKIP ►►I" key to start the HDD R/W Check.
To stop executing the test (OFF) while it is in progress, press the "SKIP I◄◄" key.



The display on the left indicates the progress of the test.
The percentage of the test progress is displayed on the screen, and the test is finished when the percentage reaches 100%.

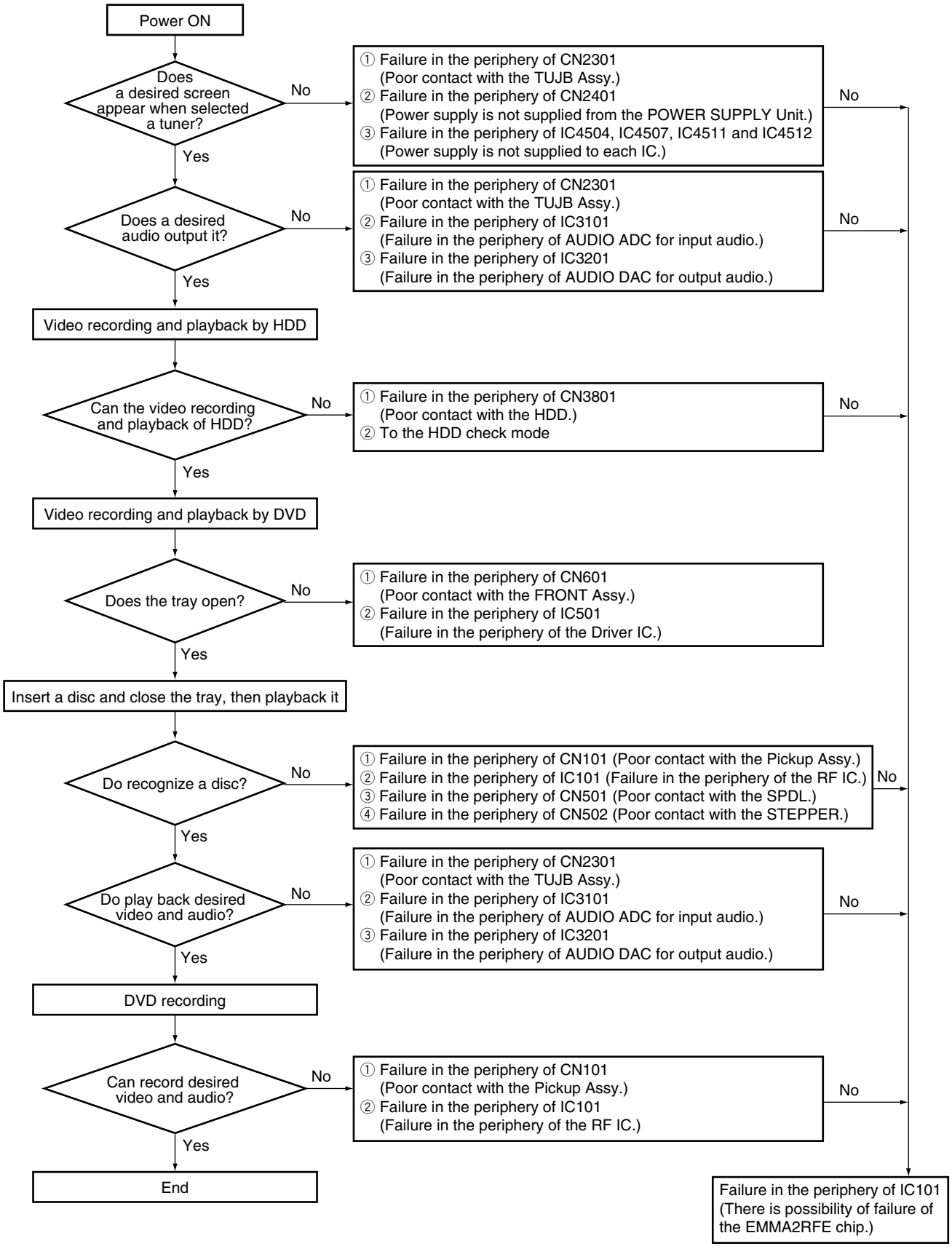


Detailed description on each item on the screen
- Write Error: Number of write errors
- Read Error: Number of read errors
- Compare Error: Number of comparison errors
- Current LBA: The address during testing
- Max LBA: Highest address number of the HDD
- Progress: Percentage of test progress (%)
- Remain Time: Estimated time required for finishing the test across all sectors.
  Estimated time: 6.4 hours/160 GB
  3.2 hours/80 GB

Diagnosis results
- If no error occurs in any of the Write/Read/Compare items, the HDD is in normal condition and is not required to be replaced. A block other than the HDD is in failure.
- If any error occurs, the HDD must be replaced.

To terminate the diagnostic program, press the "ESC" key.

7.1.8 DIAGNOSIS OF THE MAIN ASSY



7.1.9 NOTE ON REPLACEMENT OF THE SDRAM

Note when replacing the SDRAM

When replacement of the SDRAM (IC1201 or IC1221) on the MAIN Assy is required, identify the manufacturer of the SDRAM.
If the SDRAM that needs replacement was manufactured by HYNIX, both IC1201 and IC1221 must be replaced at the same time.
SDRAMs for service are manufactured by SAMSUNG.

• How to identify the manufacturer

Confirm the name of the manufacturer stamped on the surface of the part.

By HYNIX (replacement of both SDRAMs required)

By SAMSUNG (replacement of only the defective SDRAM possible)

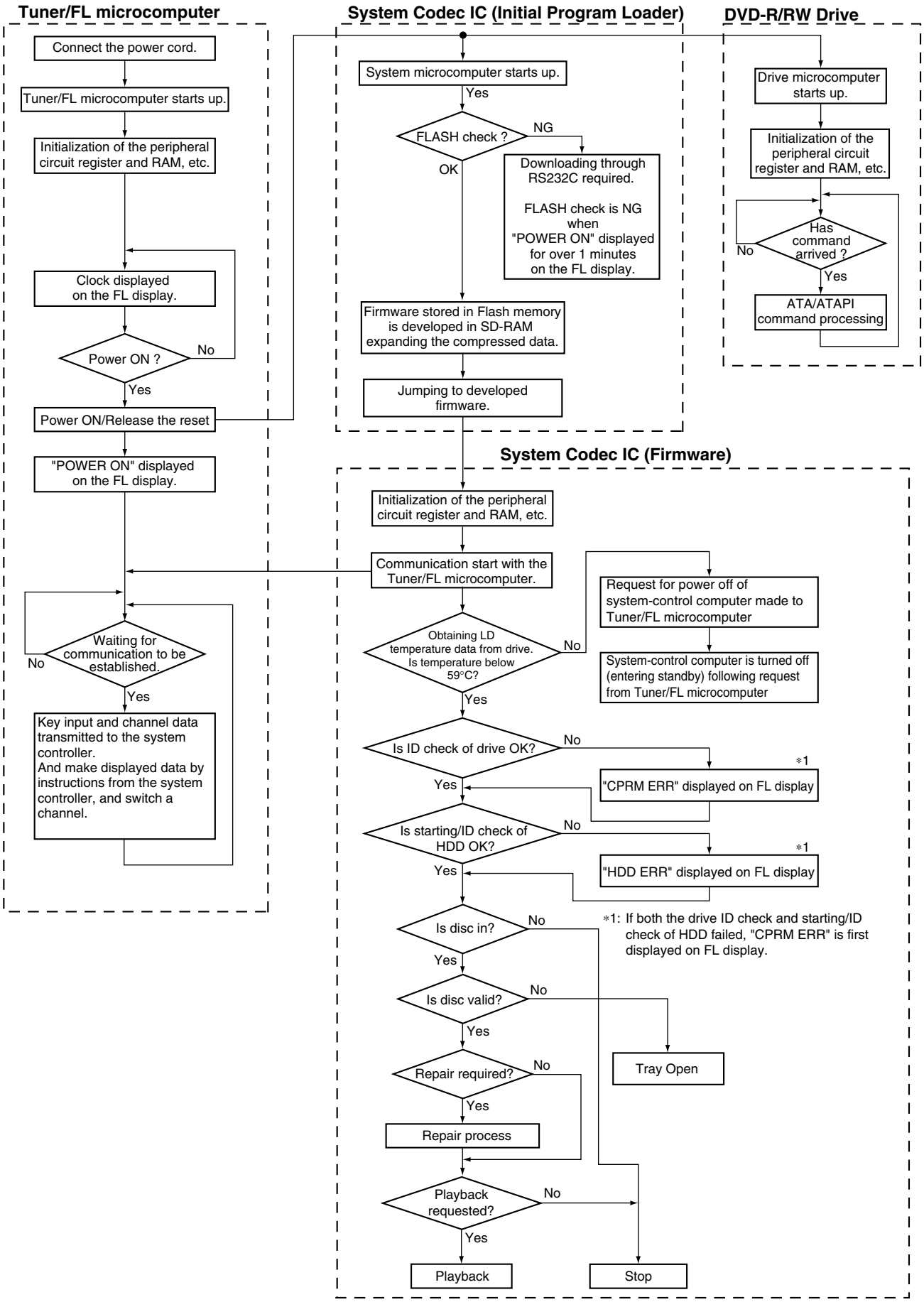
• Measures to be taken

① If the SDRAM that needs replacement was manufactured by HYNIX:
Replace both IC1201 and IC1221 at the same time.
② If the SDRAM that needs replacement was manufactured by SAMSUNG:
Replacement of only the defective SDRAM (IC1201 or IC1221) is possible.

• Possible malfunctions

If SDRAMs made by different manufacturers are mounted on the MAIN Assy, the following malfunctions may occur:
① The power does not come on.
② High-speed dubbing disabled
③ Other malfunctions related to the SDRAM

7.1.10 SETUP SEQUENCE



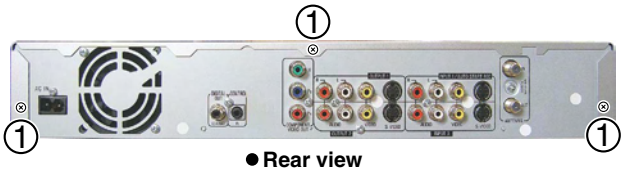
7.1.11 DISASSEMBLY

Note 1: Do NOT look directly into the pickup lens. The laser beam may cause eye injury.
Note 2: Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.
Note 3: For performing the diagnosis shown below, the following jigs for service is required:
- Emergency disc ejection rod (GGF1529)
- Flexible cable for service (VKP2291)

Diagnosis

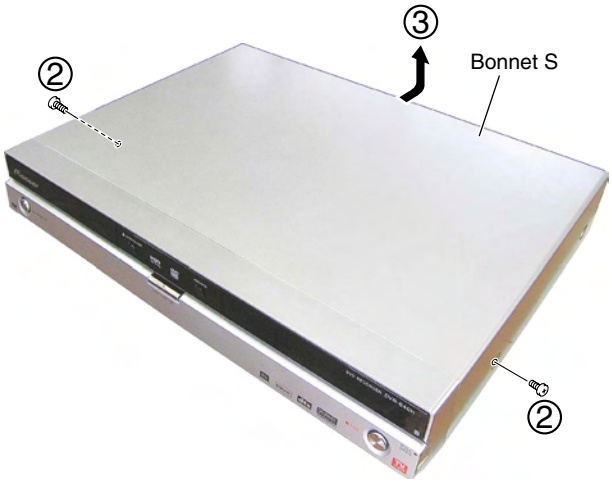
1 Bonnet S

① Remove the three screws.



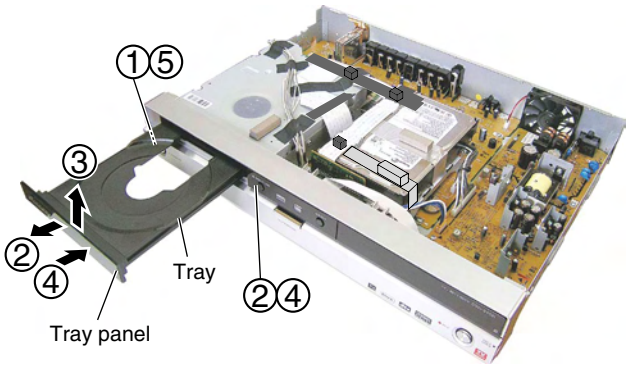
● **Rear view**

② Remove the two screws.
③ Remove the bonnet S.



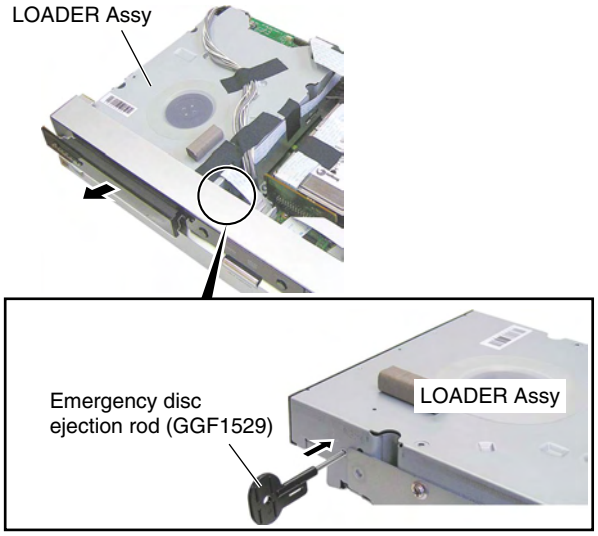
2 Tray Panel

① Press the ⏻ STANDBY/ON button to turn on the power.
② Press the ⏏ OPEN/CLOSE button to open the tray.
③ Remove the tray panel.
④ Press the ⏏ OPEN/CLOSE button to close the tray.
⑤ Press the ⏻ STANDBY/ON button to turn off the power.



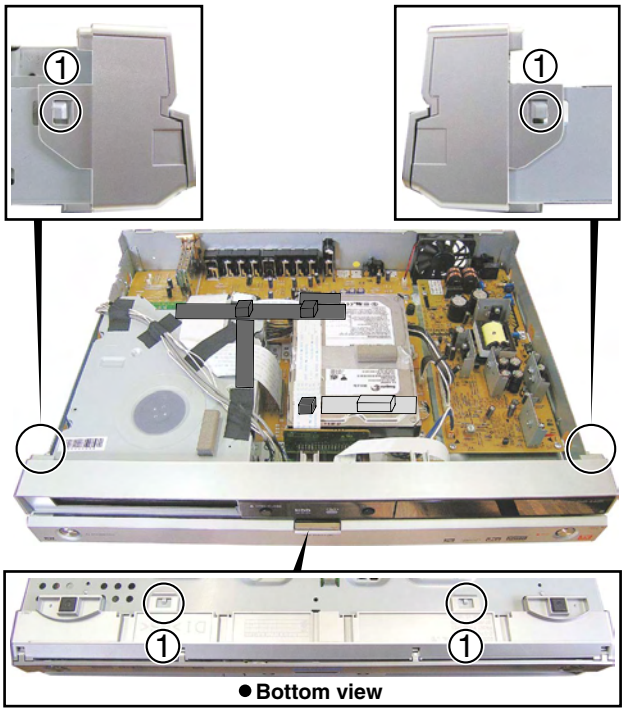
● **How to open the tray when the power cannot be turned on**

When the tray cannot be opened because the power cannot be turned on, it can be opened using the emergency disc ejection rod (GGF1529). (A long, thin rod about 1 mm in diameter can be used in place of the rod.)



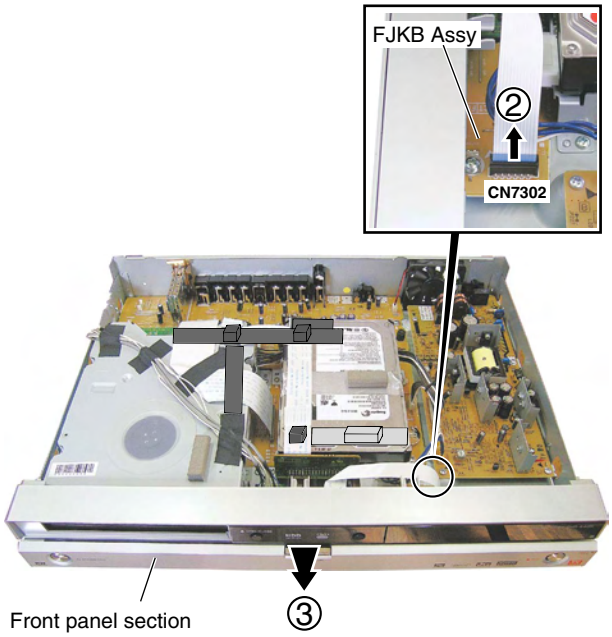
3 Front Panel Section

① Unhook the four hooks.



② Disconnect the one flexible cable.

③ Remove the front panel section.



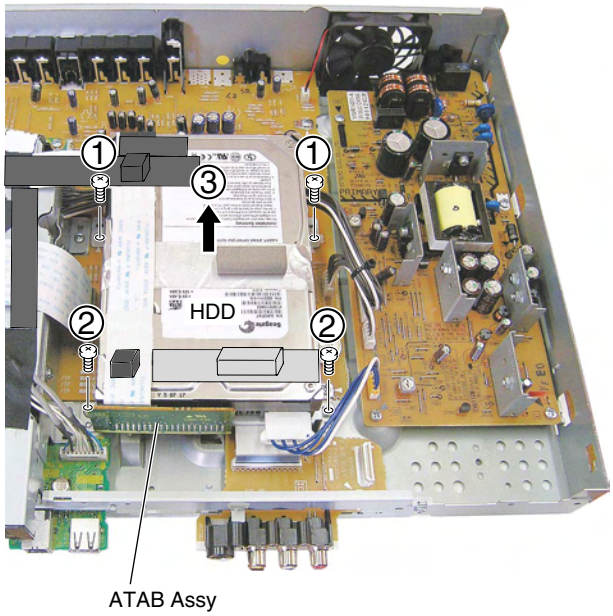
4 HDD and LOADER Assy

• **HDD**

① Remove the two screws.

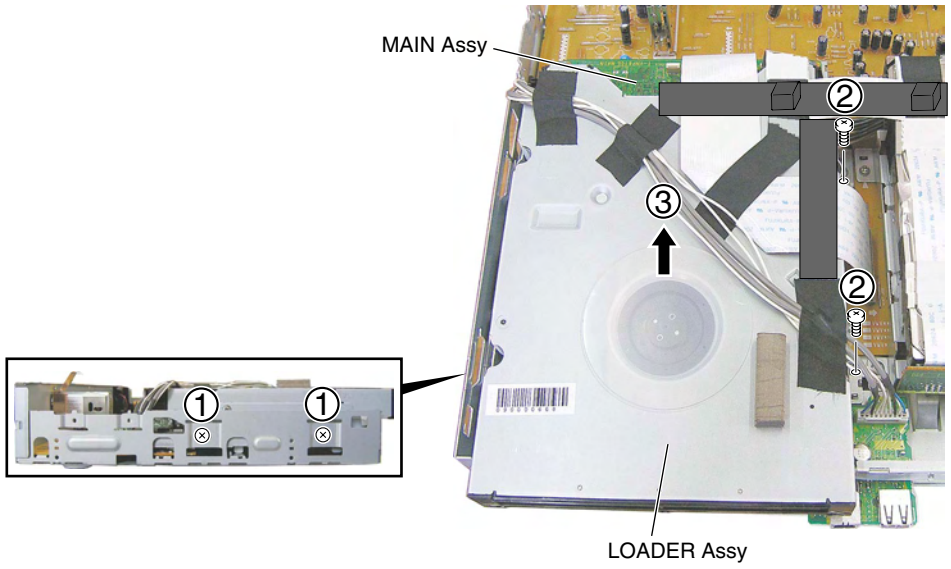
② Remove the two screws.

③ Remove the HDD with the ATAB Assy and the HDD stay. (Disconnect cables, as required.)



• LOADER Assy

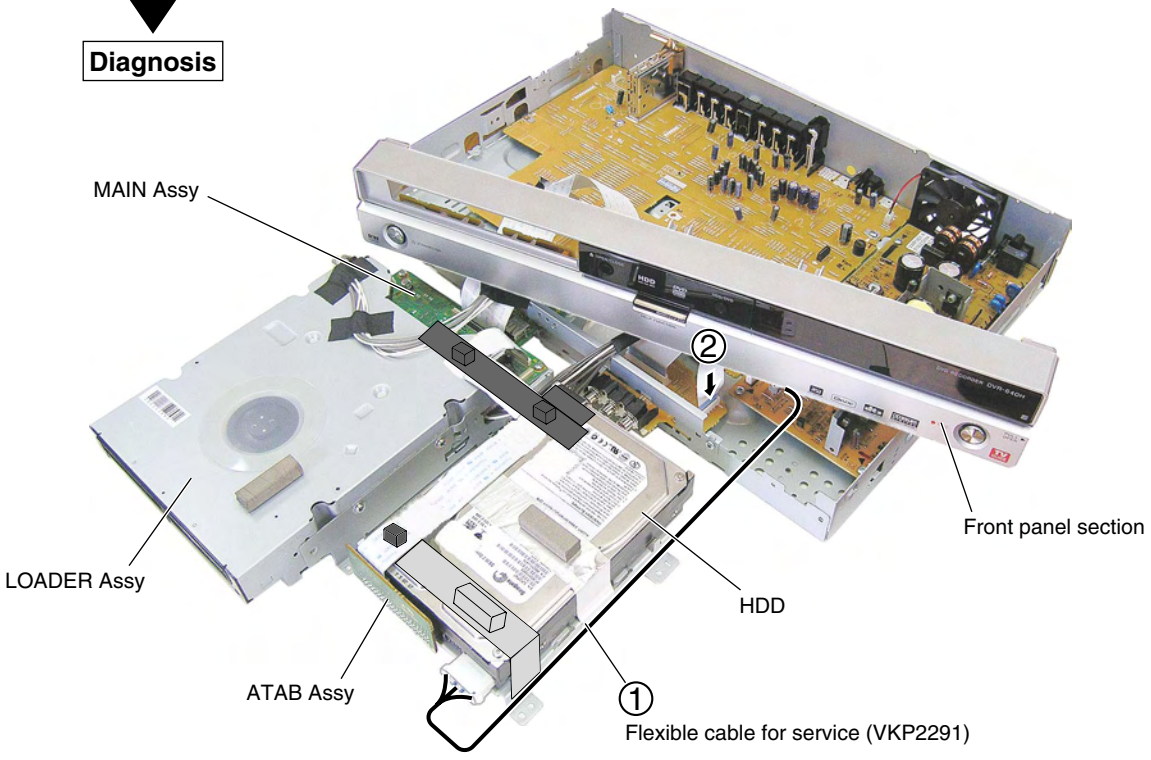
① Remove the two screws.
② Remove the two screws.
③ Remove the LOADER Assy.
(Disconnect cables, as required.)



5 Diagnosis

① Connect the flexible cable for service.
② Reassembling the front panel section.
③ Arrange the unit as shown in the photo below.

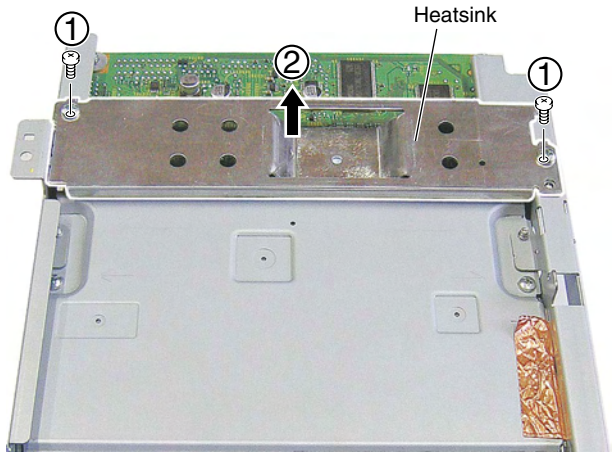
Diagnosis



Access to the MAIN Assy, Cleanning the Pickup Lens

• Heatsink

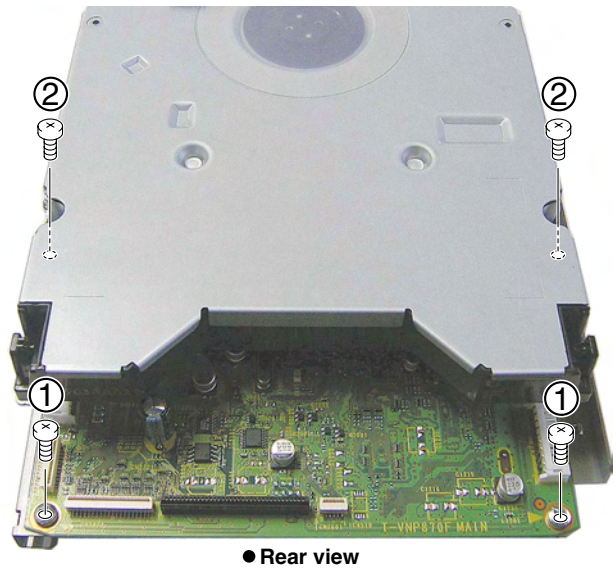
① Remove the two screws.
② Remove the heatsink.



● Bottom view

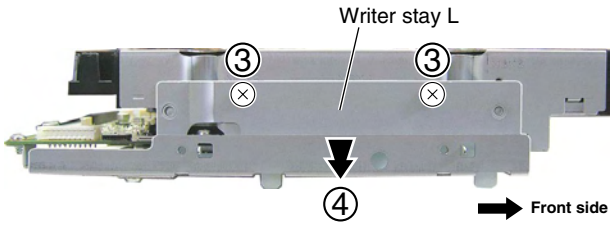
• Writer Stay L and R

① Remove the two screws.
② Remove the two screws.

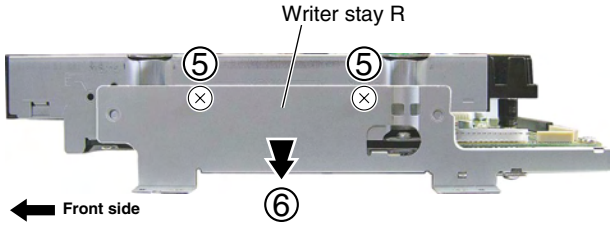


● Rear view

③ Remove the two screws.
④ Remove the writer stay L.



⑤ Remove the two screws.
⑥ Remove the writer stay R.

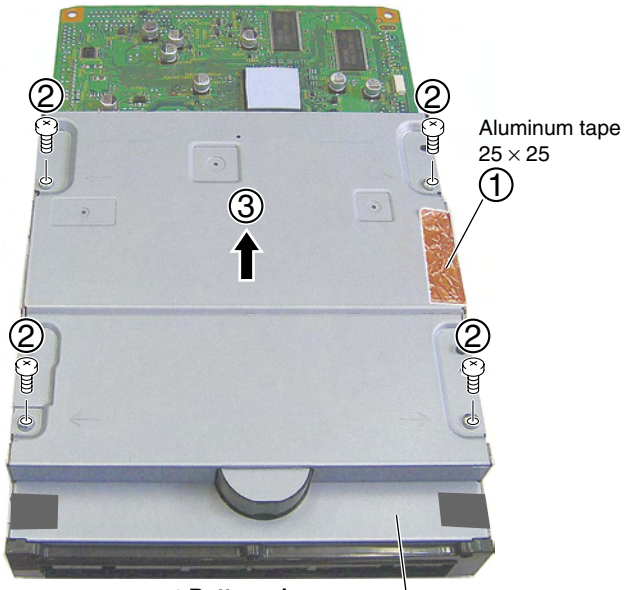


• Low Case U11 and UP Case S

① Remove the aluminum tape 25 × 25.

② Remove the four screws.

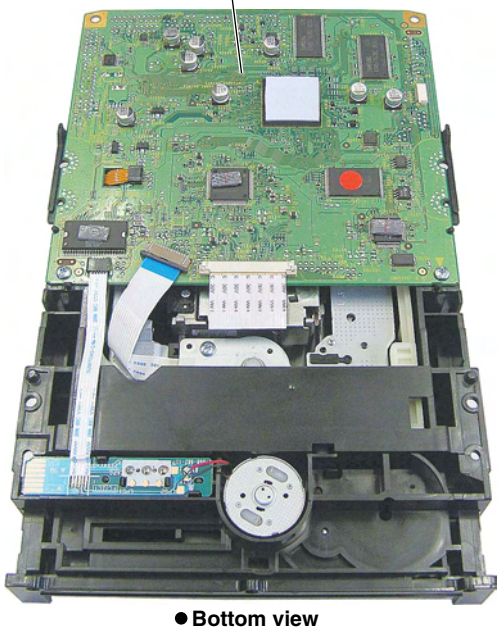
③ Remove the low case U11.



● Bottom view

Low case U11

MAIN Assy



● Bottom view

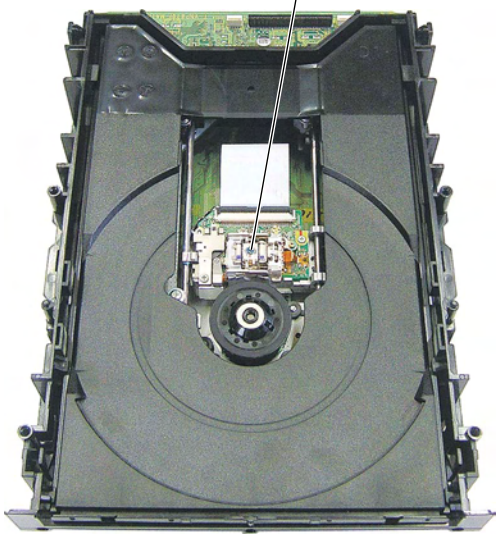
④ Remove the UP case S.

UP case S

Before shipment, be sure to clean the pickup lens, using the following cleaning materials:

Cleaning liquid : GEM1004
Cleaning paper : GED-008

Pickup lens



7.2 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

● **List of IC**

PMC007A8, UPD61272F1-107KA3A, PCA9557PW, TDOTG242-0F0C8

■ PMC007A8 (TUJB ASSY : IC101)

• TUNER Microcomputer

● **Pin Function**

No.	Mark	Pin Name	I/O	Pin Function
1	PA3/SO8	FLDATA	O	Communication line with FL driver From tuner controller to FL driver
2	PA4/SI8/SB8	FLSTB	O	Communication strobe signal with FL driver
3	PA5/SCK8	FLCLK	O	Communication clock with FL driver
4	P70/INT0/T0LCP	WDT	I	WDT for microcomputer runaway detection RC is external connection. H: Forced reset
5	P71/INT1/T0HCP	ACDET	I	Existence detection of AC power Level interrupt
6	P72/INT2/T0IN/T0LCP	HS_MTOT	I	System controller communication handshake From system controller to Tuner controller
7	P73/INT3/T0IN/T0HCP	IR	I	Pulse input of the remote control unit
8	RES#	XTRESET	I	Reset input
9	XT1	XT1	I	Sub clock connection 32.768kHz
10	XT2	XT2	O	Sub clock connection
11	VSS1	GND	–	Ground
12	CF1	CF1	I	Main clock connection 15MHz
13	CF2	CF2	O	Main clock connection
14	VDD1	VDD1	–	Power supply
15	P80/AN0	MODEL1	AI	Input 1 for destination judgment
16	P81/AN1	MODEL2	AI	Input 2 for destination judgment
17	P82/AN2	KEY1	AI	Main unit key input 1
18	P83/AN3	KEY2	AI	Main unit key input 2
19	P84/AN4	KEY3	AI	Main unit key input 3
20	P85/AN5	AGC	AI	AGC voltage input from the tuner For simple check
21	P86/AN6	BATTERY	AI	Input for battery voltage check Can measure only during 5V operation
22	P87/AN7	FUNC	AI	SCART Function signal input
23	P10/SO0	SDET3	I	Plug detection of S terminal 3
24	P11/SI0/SB0	SDET2	I	Plug detection of S terminal 2
25	P12/SCK0	SDET1	I	Plug detection of S terminal 1
26	P13/SO1	AVLOUT	O	NexTViewLink output signal Negative logic Reverse on the SCART terminal
27	P14/SI1/SB1	SDA	O/D	IIC communication (data)
28	P15/SCK1	SCL	O/D	IIC communication (clock)
29	P16/T1PWML	XSYSRST	O	IC reset signal of whole system
30	P17/T1PWMH/BUZ	TUDET	I	The old and the new distinction of the tuner pack L: New tuner, H: Old tuner
31	PE0/AN12	MUTEV	O	CVBS for video driver IC and Y/C mute signal L: Mute, H: Release Fix to L because mute does not control.
32	PE1/AN13	IRB_EN	I	IR blaster function valid selection Open: IR blaster invalidity, GND: IR blaster is valid
33	PE2/AN14	AMUTE2	O	Audio mute signal of output stage Negative logic H: Release, L: Mute
34	PE3/AN15	SELV1	O	Input switch of video selector INSEL 1 of LA73031
35	PE4	SELV2	O	Input switch of video selector INSEL 2 of LA73031
36	PE5	SELV3	O	Input switch of video selector INSEL 3 of LA73031
37	PE6	YVSEL	O	CVBS or Y/C switch of video selector YOUT-SEL of LA73031
38	PE7	SWSTBY	O	Standby mode switch of video selector Fix to L output because the standby mode is not used.
39	VSS4	GND	–	Ground
40	VDD4	VDD4	–	Power supply

No.	Mark	Pin Name	I/O	Pin Function
41	PF0	LET/FUNC_ON	O	Letter-box output superimposed signal Function output signal for Europe model
42	PF1	SQU	O	Squeeze output superimposed signal
43	PF2	CONDET	I	Electric discharge detection of capacitor for power supply backup Readout after cold-start immediately. If it was L, reduce the voltage.
44	PF3	S1	O	S1/S2 switching signal
45	PF4/IRP	IROUT	O	Pulse output for IR blaster
46	PF5	P_SAVE2	O	Power save mode switch of HA118326
47	PF6	PSMUTE	O	Audio mute control of SCART
48	PF7	XAVLTH	O	Through switch of AV.Link communication line
49	SI2P0/SO2	SO2	O	SIO2 transmission Not used.
50	SI2P1/SI2/SB2	SI2	O	SIO2 reception Not used.
51	SI2P2/SCK2	SCK2	O	SIO2 communication clock Not used.
52	SI2P3/SCK20	RFTHRU	O	RF through switch of the tuner Control with the main unit setting during standby.
53	PWM1	NC	O	Non connection
54	PWM0	FANCTRL	O	Radiation of heat fan rotating speed control H: Top speed, L: Stop Intermediate speed realizes by PWM
55	VDD2	VDD2	–	Power supply
56	VSS2	GND	–	Ground
57	P00	P_CONT2	O	Power supply control of the main board For controlling 2.5V and 3.3V
58	P01	MUTECTL	O	Mute invalidity control Port to suppress last stage mute
59	P02	EPGEXT	O	Equalizer switch of slicer input video
60	P03	TUON	O	Power supply control of the tuner section There is a case to turn on the power during standby independently.
61	P04	SWVION	O	Power supply control of Japan/North America video system Non connection in Europe and General
62	P05/CKO	P_CONT	O	Power supply control of the whole system
63	P06/T6O	FLPON	O	Power supply control of the FL tube
64	P07/T7O	XP_SAVE	O	Power supply control of Europe video system Set to SWVION on the source.
65	P20/INT4/T1IN/T0LCP/T0HCP/INT6/T0LCP1/SSGI0	STATCHG	I	Multiplex status change detection of MSP D_CTR_I/O_1 of MSP
66	P21/INT4/T1IN/T0LCP/T0HCP	J_CLOCK	I	Input audio for Just Clock Pulse input of the tuner audio
67	P22/INT4/T1IN/T0LCP/T0HCP/HCTR	CSYNCIN	I	C-Sync for Auto-Rec
68	P23/INT4/T1IN/T0LCP/T0HCP	XCHECKER	I	Unit checker mounting distinction
69	P24/INT5/T1IN/T0LCP/T0HCP/INT7/T0HCP1/SSGI1	MRST	I	Main board power failure detection Edge interrupt
70	P25/INT5/T1IN/T0LCP/T0HCP	AVLIN	I	NexTViewLink input line
71	P26/INT5/T1IN/T0LCP/T0HCP	X525P	I	525P output signal from the system controller Not used.
72	P27/INT5/T1IN/T0LCP/T0HCP	BLANKIN	I	BLANK signal input of the SCART
73	P30/PWM4	NC	O	Non connection
74	P31/PWM5	TU_DCCON	O	DC/DC converter For +32V generation 200kHz, 2(H): PWM output of 1 (L)
75	P32/UTX1	TXD1	O	Transmission for RS-232C terminal
76	P33/URX1	RXD1	I	Reception for RS-232C terminal
77	P34/UTX2	TXD2	O	UART2 transmission Not used.
78	P35/URX2	RXD2	O	UART2 reception Not used.
79	P36	HS_TTOM	O	System controller communication handshake From tuner controller to system controller
80	VDDODA	VDDODA	–	Power supply

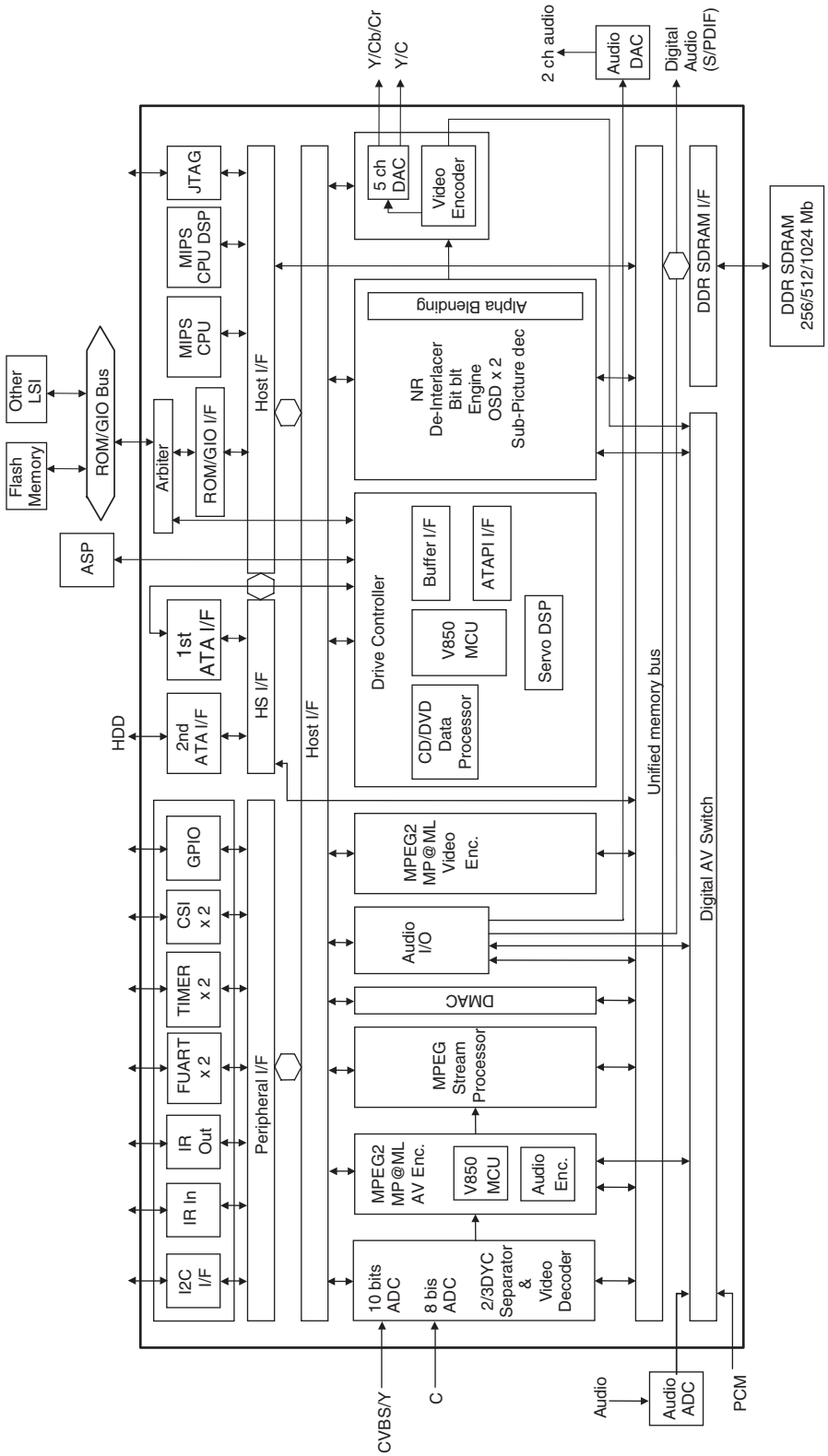
No.	Mark	Pin Name	I/O	Pin Function
81	PB6/CVD/CSYNC	CVBSIN	I	Input video for data slicer 1.0Vpp
82	VSSVCO	GND	–	Ground
83	PB4/FILTSLC	FILTSLC	I	External filter for slicer PLL
84	VDDVCO	VDDVCO	–	Power supply
85	PB2	NC	O	Non connection
86	PB1	NC	O	Non connection
87	PB0/DS1FLD	NC	O	Non connection
88	VSS3	GND	–	Ground
89	VDD3	VDD3	–	Power supply
90	PC7/DBGP2	DBGP2	O/D	Control port for on-chip debugger
91	PC6/DBGP1	DBGP1	O/D	Control port for on-chip debugger
92	PC5/DBGP0	DBGP0	O/D	Control port for on-chip debugger
93	PC4/AN11	C/N	AI	C/N detection of BS-IF
94	PC3/AN10	BS15IN	I	Antenna power supply detection of the BS-OUT terminal There is power supply with L. There is no power supply with H
95	PC2/AN9	BS15SRT	I	Antenna power supply short-circuit detection of the BS-IN terminal L: Short-circuit, H: Normal
96	PC1/AN8	BS15ON	O	Antenna power supply control to the BS-IN terminal L: Power OFF, H: Power ON
97	PC0/OCSYNC	P_SAVEBS	O	BS RF through control L: Not through, H: Through
98	PA0/SO7	SD_TTOM	O	System controller communication data line From tuner controller to system controller
99	PA1/SI7/SB7	SD_MTOT	I	System controller communication data line From system controller to tuner controller
100	PA2/SCK7	SCK_MTOT	I	System controller communication clock From system controller to tuner controller

■ UPD61272F1-107KA3A (MAIN ASSY : IC1001)

(EMMA2RFE)

• DVDR IC

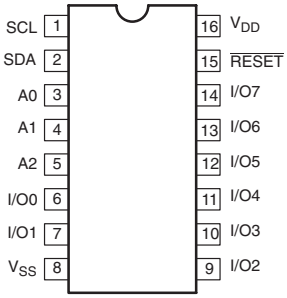
● BLOCK DIAGRAM



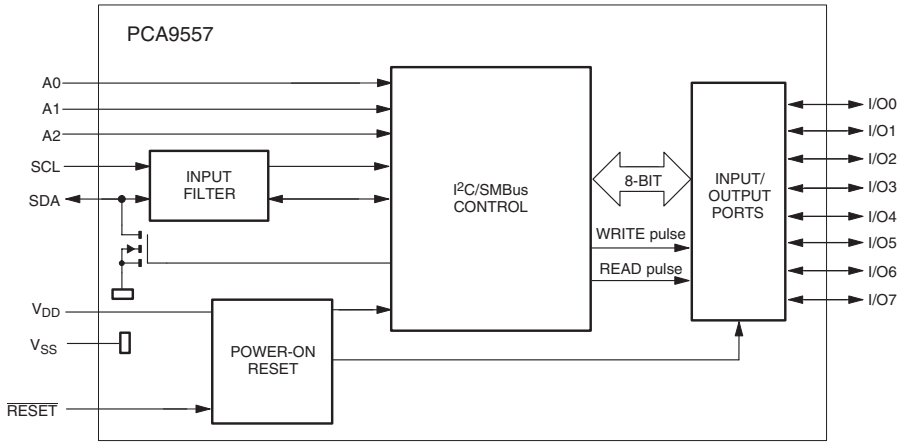
■ PCA9557PW (MAIN ASSY : IC3802)

• 8Bit IIC to PARA IC

● PIN LAYOUT



● BLOCK DIAGRAM



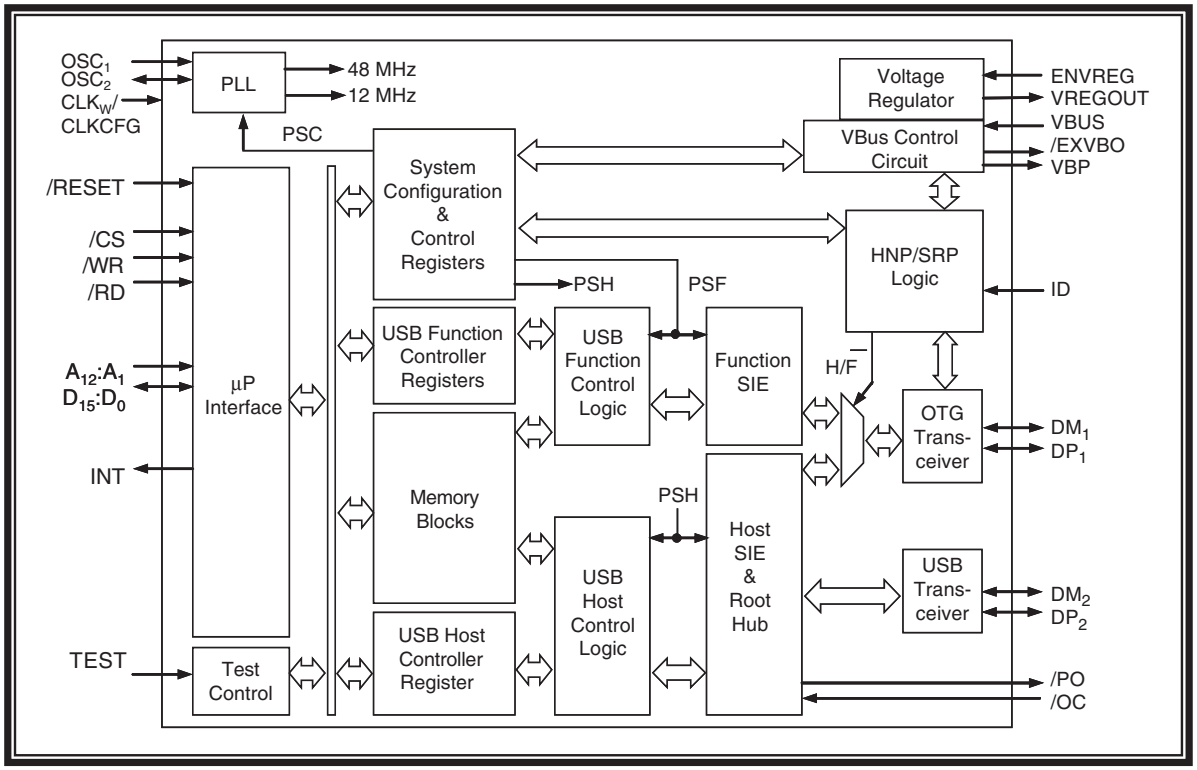
● PIN FUNCTION

Pin No.	Name	Function
1	SCL	Serial clock line
2	SDA	Serial data line
3	A0	Address input 0
4	A1	Address input 1
5	A2	Address input 2
6	I/O0	I/O0 (open drain)
7	I/O1	I/O1
8	V_{SS}	Supply ground
9±14	I/O2±I/O7	I/O2 to I/O7
15	$\overline{\text{RESET}}$	Active-LOW reset input
16	V_{DD}	Supply voltage

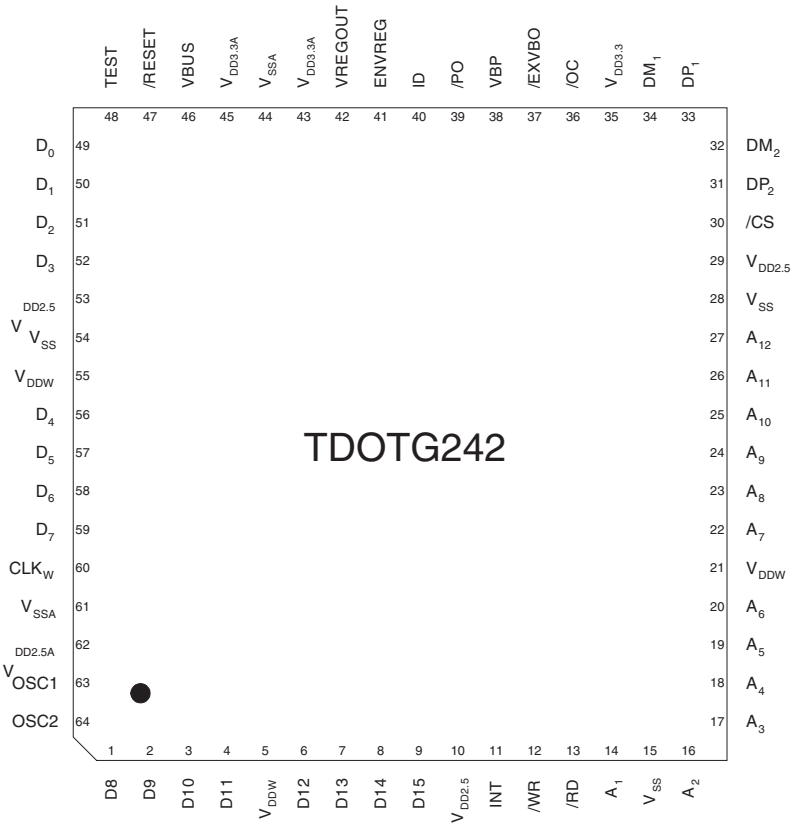
■ TDOTG242-0F0C8 (MAIN ASSY : IC5701)

• USB Controller IC

● BLOCK DIAGRAM



● **PIN LAYOUT**



● **PIN NAME**

1	D_8	17	A_3	33	DP_1	49	D_0
2	D_9	18	A_4	34	DM_1	50	D_1
3	D_{10}	19	A_5	35	$V_{DD3.3}$	51	D_2
4	D_{11}	20	A_6	36	/OC	52	D_3
5	V_{DDW}	21	V_{DDW}	37	/EXVBO	53	$V_{DD2.5}$
6	D_{12}	22	A_7	38	VBP	54	V_{SS}
7	D_{13}	23	A_8	39	/PO	55	V_{DDW}
8	D_{14}	24	A_9	40	ID	56	D_4
9	D_{15}	25	A_{10}	41	ENVREG	57	D_5
10	$V_{DD2.5}$	26	A_{11}	42	VREGOUT	58	D_6
11	INT	27	A_{12}	43	$V_{DD3.3A}$	59	D_7
12	/WR	28	Vss	44	V_{SSA}	60	CLK_W
13	/RD	29	$V_{DD2.5}$	45	$V_{DD3.3A}$	61	V_{SSA}
14	A_1	30	/CS	46	VBUS	62	$V_{DD2.5A}$
15	V_{SS}	31	DP_2	47	/RESET	63	OSC_1
16	A_2	32	DM_2	48	TEST	64	OSC_2

OTG242LP pin assignment for the 64-pin LQFP

- **PIN FUNCTION**

Pin/Signal Name	Signal Type	Active Level	Pin/Signal Description
OSC_1	I		Terminal for OSC.
OSC_2	IO		
/RESET	I	L	Hardware reset.
/CS	I	L	Chip select.
/WR	I	L	Write strobe.
/RD	I	L	Read strobe.
A_{12}:A_1	I		Address bus for an addressing space of 8K bytes.
D_{15}:D_0	IO		16-bit data bus.
TEST	I	H	Factory test mode.
/EXVBO	O	L	Turn on/off the external V_{BUS} (5V) for OTG operation (1: V_{BUS} off; 0: V_{BUS} on).
/PO	O	L	Turn on/off the gang power for all Host ports.
/OC	I	L	Over current condition indicator for gang powered Host ports.
INT[1]	O/WO	PL	Interrupt to the MCU.
ID	I		Connected to the ID pin of the mini-AB connector (Port 1) for OTG applications.
DM_1, DP_1	IO		Data lines for Port 1, which may serve as a USB Host, or OTG port.

Pin/Signal Name	Signal Type	Active Level	Pin/Signal Description
DM_2, DP_2	IO		Data lines for Port 2, a dedicated USB Host port.
VBUS	I		V_{BUS} input sampled during HNP/SRP operations by the OTG port.
VBP	IO	H	V_{BUS} pulsing control. This pin is used only when Port 1 is an OTG port for a B-DEVICE.
CLK_W	I		This pin is available only in the QFP package
CLKCFG	I		This pin is available only in the BGA package
ENVREG	I		Enables the internal Voltage Regulator if asserted.
VREGOUT	PW		Internal Voltage Regulator output of 2.5V
$V_{DD3.3A}$	PW		Analog +3.3V
$V_{DD2.5A}$	PW		Analog +2.5V
V_{SSA}	PW		Analog ground.
$V_{DD2.5}$	PW		Digital +2.5V
V_{DDW}	PW		Wide-range IO +3.3V or +2.5V.
V_{SS}	PW		Digital/Wide-range IO ground.
NC	PS		No connection. These pins should be left floating.

7.3 CAUTIONS ON HANDLING THE HDD

(1) Cautions on Handling the HDD

- The HDD is very sensitive to shocks and vibrations. Care must be taken especially during operation (when the power is on).
- The HDD is very sensitive to electrostatic charges.
- Rapid change in temperature or humidity may cause deterioration of the HDD.

Note: After receiving damage caused by any above-mentioned factors, the HDD may operate normally for dozens or some hundreds of hours but then suddenly crash. If you are certain you have damaged a new repair part (HDD) while making repairs, do not use the part.

The HDD is about 10 times as sensitive to shock during operation than during nonoperation.

Reference: Main specifications on damage to the HDD

	During operation	During nonoperation
Shock G (acceleration)	<approx. 20 G	<approx. 200 G
Temperature change	< 15°C/hour	
Moisture change	< 20%/hour	

Reference: Estimate value of falling distance vs. shock (G) when the HDD is dropped without protection

Falling distance \ Landing surface	Granite surface	Concrete floor	Synthetic-resin-coated table	Antistatic sponge
0.5 inch / 12.7 mm	387	217	200	26
1.0 inch / 25.4 mm	595	457	310	37
2.0 inch / 50.8 mm	1133	600	680	70
4.0 inch / 101.6 mm	1795	1040	1050	267

(2) Cautions on handling the product on which the HDD is mounted or the HDD as a repair part, and examples of dangerous handling

[Cautions on handling the product on which the HDD is mounted]

- While the unit is turned on, the HDD is always in operation. Be sure NOT to impart shock to the unit.

● Examples of dangerous handling: while the power is on

- Bumping on the bonnet
- Dropping an object, such as a small screwdriver or remote control unit, onto the bonnet, or bumping an object against the cabinet
- Moving the unit by dragging
- Stacking another product on the unit

Note: Be sure NOT to impart shock, such as bumping or hitting a screwdriver against the HDD, during diagnosis with the bonnet open.

● Examples of dangerous handling: while the power is off

- Imparting strong shock, although the HDD is more resistant to shock when the power is off
- Dropping the unit from a height of several centimeters, or after lifting one side of the unit up, then letting the unit drop.

- Do NOT move the unit immediately after the power is turned off. Wait at least 30 seconds after the indication on the FL display changed from POWER OFF to the clock indication before moving the unit.
  If the AC power cord is accidentally disconnected before turning the unit off, wait at least for one minute before moving it. In this case, damage to the HDD caused by sudden shutoff may be small, because the emergency relief mechanism is activated. However, if sudden shutoff occurrs during recording or playback, recorded data may be damaged. Be sure to check operations.

[Cautions on handling the HDD as a repair part]

1. Handle the HDD in a safe environment:
   - Handle the HDD over an antistatic pad that can also absorb shock.
   - Wear wrist bands to prevent electrostatic charges generated in your body from affecting the HDD.

2. The following must be observed when handling the HDD:
   - Handle one HDD at a time. Do NOT hold several HDDs at the same time.
   - Grip the HDD on both sides so that you do not touch its terminals or circuit boards.
   - Do NOT stack one HDD onto another HDD (even if the HDDs are protected in antistatic bags).
   - Do NOT bump the HDDs against one another.
   - Do NOT bump any tool, such as a screwdriver, or other hard object against the HDD.
   - When a repair part (HDD) is transported and there is a large temperature difference between outdoors and indoors, to the indoor, leave it in its package for about a half day to gradually cool or warm the HDD to room temperature before unpacking it.

[Notes on packing for shipment]

- When returning a defective HDD for analysis, handle with care as if it were a good product. Otherwise, the results of analysis may not be correct.
- When packing, use the antistatic bag and packing materials in which the repair part for service was delivered. Attach a copy of the slip for service or a memo stating symptoms in as much detail as possible.

■ Outline and part No. of the HDDs

*Pioneer's part No. is not stamped.

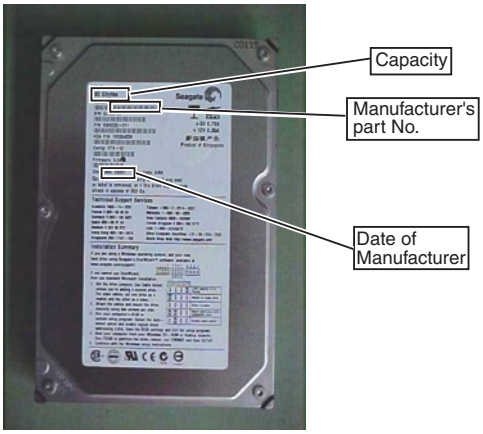
Model Name	Capacity	Western Digital		SEAGATE	
		Pioneer's Part No. (for service)	Manufacture's Part No.	Pioneer's Part No. (for service)	Manufacture's Part No.
DVR-540H-S DVR-543H-S	80GB	VXF1066	WD800BB -xxHJKC	VXF1084	ST380012ACE
				VXF1108	ST3802110ACE
DVR-640H-S	160GB	VXF1068	WD1600BB -xxGUCx	VXF1086	ST3160022ACE
				VXF1110	ST3160212ACE

- When replacing the HDD, carefully check the capacity and manufacturer's part No. on the part label to avoid replacing with a similar but inappropriate product. You can also check the model No. of the mounted HDD on the Service mode screen.
- Do NOT use repair parts, such as commercially available HDDs, other than those designated above, as their functions, performance or reliability cannot be guaranteed.

Western Digital(80GB)

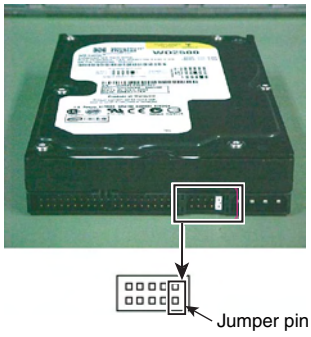
Western Digital(160GB)

Seagate(80G,160G)



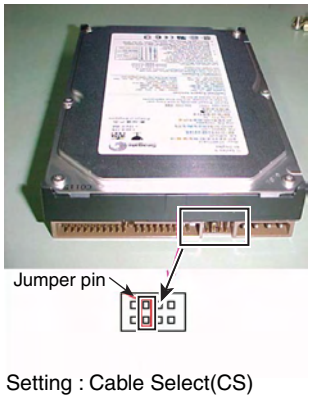
■ Confirmation of the jumper pin location of the HDD

Western Digital



Setting : Cable Select(CS)

Seagate



Setting : Cable Select(CS)

7.4 DISC/CONTENT FORMAT

	HDD	DVD-R		DVD-RW		DVD+R	DVD +RW	DVD-RAM
Marks used in this manual	HDD	DVD (VR) *1	DVD (Video)	DVD (VR) *1	DVD (Video) *2	DVD+R	DVD+RW	DVD-RAM *13, 16
Logos	HDD HARD DISK DRIVE	DVD R		DVD RW	DVD RW RW 2	RW DVD+R	RW DVD+ReWritable RW DVD+ReWritable	DVD RAM
Re-recordable / Erasable	●	● *3	● *3	●	●	*3	● *14	●
Editing of recorded programs	●	●	● *4	●	● *4	● *4	● *4	●
Recording of Copy-once protected material	●	● *12		● *12				● *12
Playback in other players/recorders	*n/a*	*5	● *6	● *7	● *6	● *6, 15	● *8	● *9
Chase play	●							
16:9 and 4:3 program recording	●	●		●				●
Bilingual broadcast recording of both audio channels	● *10, 11	● *11		● *11				● *11

Notes to table

**1 Must be initialized for VR mode recording*
**2 Must be initialized for Video mode recording*
**3 Erasable, but free space does not increase*
**4 Cannot erase sections, edit chapters or use playlist editing*
**5 Must be compatible with DVD-R(VR) playback*
**6 Finalize using this recorder (may not playback in some units)*
**7 Must be compatible with DVD-RW(VR) playback*
**8 Must be compatible with DVD+RW playback*
**9 Must be compatible with DVD-RAM playback*
**10 Only when HDD Recording Format is set to Video Mode Off*
**11 Only when the recording mode is not set to LPCM*
**12 CPRM-compatible discs only*
**13 Take the disc out of the cartridge before use. Only Matsushita and Maxell discs have been tested to work reliably with this recorder. Discs from other makers may become unusable when recorded or edited.*
**14 Erasing a title does not increase the available recording time, nor increase the number of recordable titles left.*
**15 Must be compatible with DVD+R playback*
**16 Depending on the disc, it may have to be initialized before it can be recorded. In this case, initialization will take about 1 hour.*

DVD is a trademark of DVD Format/Logo Licensing Corporation.

Using DVD-R DL/DVD+R DL discs

DVD-R DL (dual-layer) and DVD+R DL (double-layer) discs contain two recordable layers on a single side, giving about 1.8 times the recording capacity of a conventional single-layer disc. This unit can record to both DVD-R DL and DVD+R DL discs.

- If you intend to play DVD-R DL (Video mode) or DVD+R DL discs recorded on this unit on other DVD recorders/players, you must finalize them. (Note that some DVD recorders/players may not play even finalized DL discs.)
- Please read the information provided on the disc packaging carefully before purchasing DVD-R DL/DVD+R DL discs:
- *Confirm the disc version:* Use ver. 3.0 / 2 x to 4 x DVD-R discs.
- *Confirm the recording speed :* DVD-R should be compatible with 2 x or 4 x recording; DVD+R with 2.4 x to 8 x recording.
- This logo indicates that the disc is a DVD-R DL or DVD+R DL disc:

DVD R DL 4X/2X RW DVD+R DL

- Correct operation has been confirmed for DVD-R DL discs (Ver. 3.0 / 2 x, 4 x) produced by the following manufacturers: Mitsubishi Kagaku Media, Verbatim (as of March 2005).

About DualDisc playback

A DualDisc is a new two -sided disc, one side of which contains DVD content -video, audio, etc. -while the other side contains non-DVD content such as digital audio material.

The non-DVD, audio side of the disc is not compliant with the CD Audio specification and therefore may not play.

It is possible that when loading or ejecting a DualDisc, the opposite side to that being played will be scratched. Scratched discs may not be playable.

The DVD side of a DualDisc plays in this product. DVD-Audio content will not play.

For more detailed information on the DualDisc specification, please refer to the disc manufacturer or disc retailer.

Other disc compatibility

In addition to DVD, this recorder is compatible with a wide range of disc types (media) and formats. Playable discs will generally feature one of the following logos on the disc and/or disc packaging. Note however that some disc types, such as recordable CD (and DVD), may be in an unplayable format - see below for further compatibility information.

CD-R/RW compatibility

This recorder cannot record CD-R or CD-RW discs.

- Readable formats: CD-Audio, Video CD/ Super VCD, ISO 9660 CD-ROM* containing MP3, WMA, JPEG or DivX files.
  * *ISO 9660 Level 1 or 2 compliant. CD physical format: Mode1, Mode2 XA Form1. Romeo and Joliet file systems are both compatible with this recorder.*
- Multi-session playback: Yes (except CD-Audio and Video CD/Super VCD)
- Unfinalized disc playback: CD-Audio only

Compressed audio compatibility

- Compatible media: CD-ROM, CD-R, CD-RW
- Compatible formats: MPEG-1 Audio Layer 3 (MP3), Windows Media Audio (WMA)
- Sampling rates: 32 kHz, 44.1 kHz or 48 kHz
- Bit-rates: Any (128 Kbps or higher recommended)
- Variable bit-rate (VBR) MP3 playback:Yes
- VBR WMA playback: No
- WMA encoder compatibility: Windows Media Codec 8*(files encoded using Windows Media Codec 9 may be playable but some parts of the specification are not supported; specifically, Pro, Lossless, Voice and VBR)*
- DRM (Digital Rights Management)[1] file playback: No
- File extensions: .mp3, .wma (these must be used for the recorder to recognize MP3 and WMA files - do not use for other file types)
- File structure: Up to 99 folders / 999 files (if these limits are exceeded, only files and folders up to these limits are playable)

WMA (Windows Media Audio) compatibility

The Windows Media® logo printed on the box indicates that this recorder can playback Windows Media Audio content.

WMA is an acronym for Windows Media Audio and refers to an audio compression technology developed by Microsoft Corporation. WMA content can be encoded by using Windows Media® Player for Windows® XP, Windows Media® Player 9 or Windows Media® Player 10 series.

Microsoft, Windows Media, and the Windows logo are trademarks, or registered trademarks of Microsoft Corporation in the United States and/or other countries.

DivX video compatibility

DivX is a compressed digital video format created by the DivX® video codec from DivX, Inc. This recorder can play DivX video files burned on CD-R/RW/ROM discs. Keeping the same terminology as DVD-Video, individual DivX video files are called "Titles." When naming files/titles on a CD-R/RW disc prior to burning, keep in mind that by default they will be played in alphabetical order.

- Official DivX® Certified product.
- Plays all versions of DivX® video (including DivX® 6) with standard playback of DivX® media files.
- File extensions: .avi and .divx (these must be used for the recorder to recognize DivX video files). *Note that all files with the .avi extension are recognized as MPEG4, but not all of these are necessarily DivX video files and therefore may not be playable on this recorder.*
- File structure: Up to 99 folders or 999 files.

DivX, DivX Certified, and associated logos are trademarks of DivX, Inc. and are used under license.

DivX® VOD content

DivX

In order to play DivX VOD (video on demand)

Note

1 DRM (digital rights management) copy protection is a technology designed to prevent unauthorized copying by restricting playback, etc. of compressed audio files on devices other the PC (or other recording equipment) used to record it. For detailed information, please see the instruction manuals or help files that came with your PC (or other WMA recording equipment) and/or software.

content on this recorder, you first need to register the recorder with your DivX VOD content provider. You do this by generating a DivX VOD registration code, which you submit to your provider.

Some DivX VOD content may only be playable a fixed number of times. When you load a disc containing this type of DivX VOD content, the remaining number of plays is shown on-screen and you then have the option of playing the disc (thereby using up one of the remaining plays), or stopping. If you load a disc that contains expired DivX VOD content (for example, content that has zero remaining plays), the message **Rental Expired** is displayed.

If your DivX VOD content allows an unlimited number of plays, then you may load the disc into your recorder and play the content as often as you like, and no message will be displayed.

Important

- DivX VOD content is protected by a DRM (Digital Rights Management) system. This restricts playback of content to specific, registered devices.
- If you load a disc that contains DivX VOD content not authorized for this recorder, the message **Authorization Error** is displayed and the content will not play.
- Resetting the recorder will not cause you to lose your registration code.

JPEG file compatibility

- Compatible formats: Baseline JPEG and EXIF 2.2* still image files
  * *File format used by digital still cameras*
- Sampling ratio: 4:4:4, 4:2:2, 4:2:0
- Horizontal resolution: 160 to 5120 pixels
- Vertical resolution: 120 to 3840 pixels
- Progressive JPEG compatible: No
- File extensions: .jpg, .jpeg, .jpe, .jif, .jfif (must be used for the recorder to recognize JPEG files - do not use for other file types)
- File structure: The recorder can load up to 99 folders / 999 files at one time*(if there are more files/folders that this on the disc then more can be reloaded)*

PC-created disc compatibility

Discs recorded using a personal computer may not be playable in this unit due to the setting of the application software used to create the disc. In these particular instances, check with the software publisher for more detailed information.

Discs recorded in packet write mode (UDF format) are not compatible with this recorder.

Check the DVD-R/RW or CD-R/RW software disc boxes for additional compatibility information.

Dolby Digital

Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.

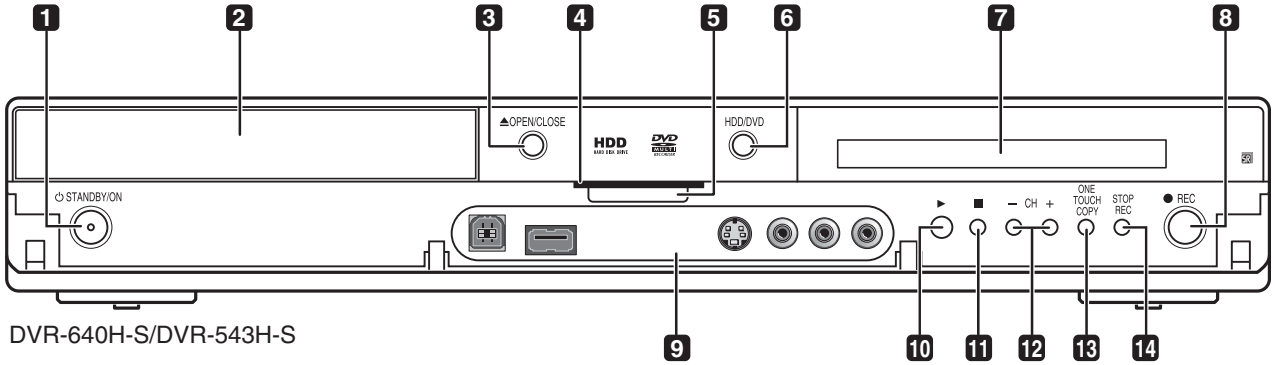
DTS

"DTS" and "DTS Digital Out" are registered trademarks of Digital Theater Systems, Inc.

8. PANEL FACILITIES

8.1 FRONT SECTION

● Front panel



DVR-640H-S/DVR-543H-S

1 ⏻ STANDBY/ON
Press to switch the recorder on/into standby.

2 Disc tray

3 ⏏ OPEN/CLOSE
Press to open/close the disc tray.

4 HDD / DVD indicators
Indicator lights blue when the hard disk (HDD) is selected; orange when the DVD drive is selected.

5 HELP FUNCTION
Press to display the on-screen help.

6 HDD/DVD
Press to switch between HDD and DVD for recording and playback.

7 Front panel display and IR remote sensor

8 ● REC
Press to start recording. Press repeatedly to set the recording time in 30 minute blocks.

9 Front panel inputs

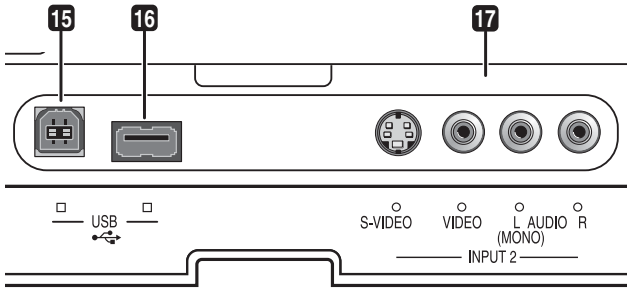
10 ►
Press to start or restart playback.

11 ■
Press to stop playback.

12 CH +/–
Use to change channels, skip chapters/tracks, etc.

13 ONE TOUCH COPY
Press to start One Touch Copy of the currently playing title to DVD or the HDD.

14 STOP REC
Press to stop recording.



On the front panel a flip-down cover hides more connections.

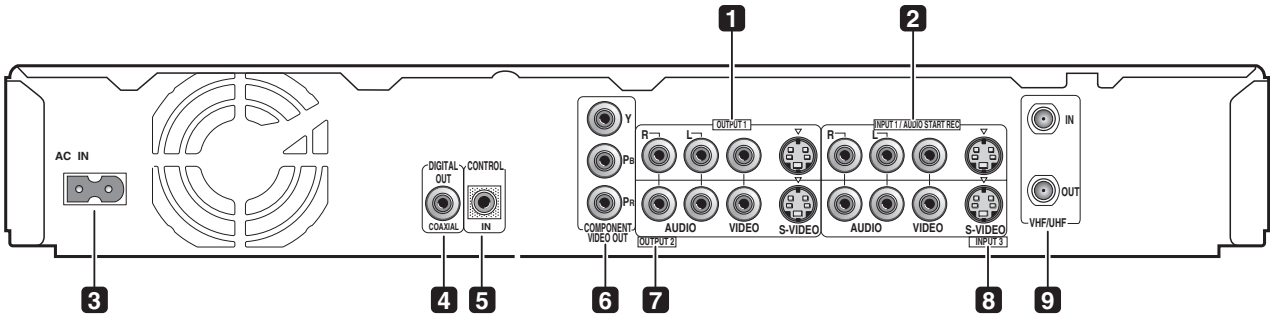
15 USB port (type B) (DVR-640H-S/DVR-543H-S only)
USB port for connecting a PictBridge-compatible printer.

16 USB port (type A) (DVR-640H-S/DVR-543H-S only)
USB port for connecting a digital camera, USB memory or other USB device.

17 INPUT 2
Audio/video input (stereo analog audio; composite and S-video video), especially suitable for camcorders, game consoles, portable audio, etc.

8.2 REAR PANEL

● Rear panel



1 OUTPUT 1
Stereo analog audio, S-video and composite video output for connection to a TV, monitor, AV receiver, etc.

2 INPUT 1/AUTO START REC
Stereo analog audio, S-video and composite video input for connection to a satellite receiver, set top box, etc.

3 AC IN
Connect to a power outlet using the supplied power cable after making all other connections.

4 COAXIAL DIGITAL OUT
A digital audio output for connecting to an AV amp/receiver, Dolby Digital/DTS decoder or other equipment with coaxial digital input.

5 CONTROL IN
Use to control this recorder from the remote sensor of another Pioneer component with a **CONTROL OUT** terminal and bearing the Pioneer mark. Connect the **CONTROL OUT** of the other component to the **CONTROL IN** of this recorder using a mini-plug cord.

6 COMPONENT VIDEO OUT
A high-quality video output for connecting to a TV or mor with a component video input.

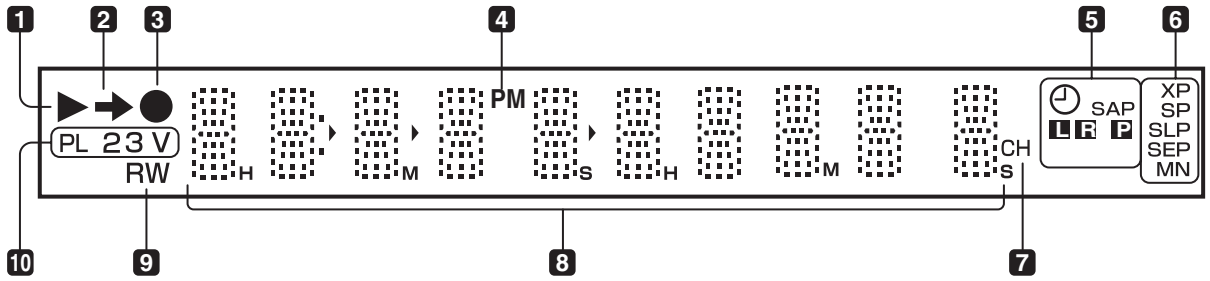
7 OUTPUT 2
Stereo analog audio, S-video and composite video output connection to a TV, monitor, AV receiver, etc.

8 INPUT 3
Stereo analog audio, S-video and composite video input connection to a satellite receiver, set top box, etc.

9 VHF/UHF IN/OUT
Connect your TV antenna to the **VHF/UHF IN (RF IN)** jac The signal is passed through to the **VHF/UHF OUT** jack connection to your TV.

8.3 DISPLAY

● Display



1 ►
Lights during playback; blinks when playback is paused.

2 ➡
Lights when copying.

3 ●
Lights during recording; blinks when recording is paused.

4 PM
Lights to indicate PM (after midday) for the clock display.

5 🕘
Lights when a timer recording has been set. (Indicator blinks if the timer has been set to DVD but there isn't a recordable disc loaded, or the timer has been set to HDD but the HDD is not recordable.)

SAP
Lights when the currently selected TV channel has a Second Audio Program channel.

L R
Indicates which channels are recorded when dual mono is selected.

P
Lights when the component video output is set to progressive scan.

6 Recording quality indicators

XP
Lights when the recording mode is set to **XP** (best quality).

SP
Lights when the recording mode is set to **SP** (standard play).

LP / SLP
Lights when the recording mode is set to **LP** (long play) or **SLP** (super-long play).

EP / SEP
Lights when the recording mode is set to **EP** (extended play) or **SEP** (super-extended play).

MN
Lights when the recording mode is set to **MN** (manual recording level) mode.

7 CH
Channel indicator for the built-in TV tuner.

8 Character display

9 R/RW
Lights when a recordable DVD-R or DVD-RW disc is loaded.

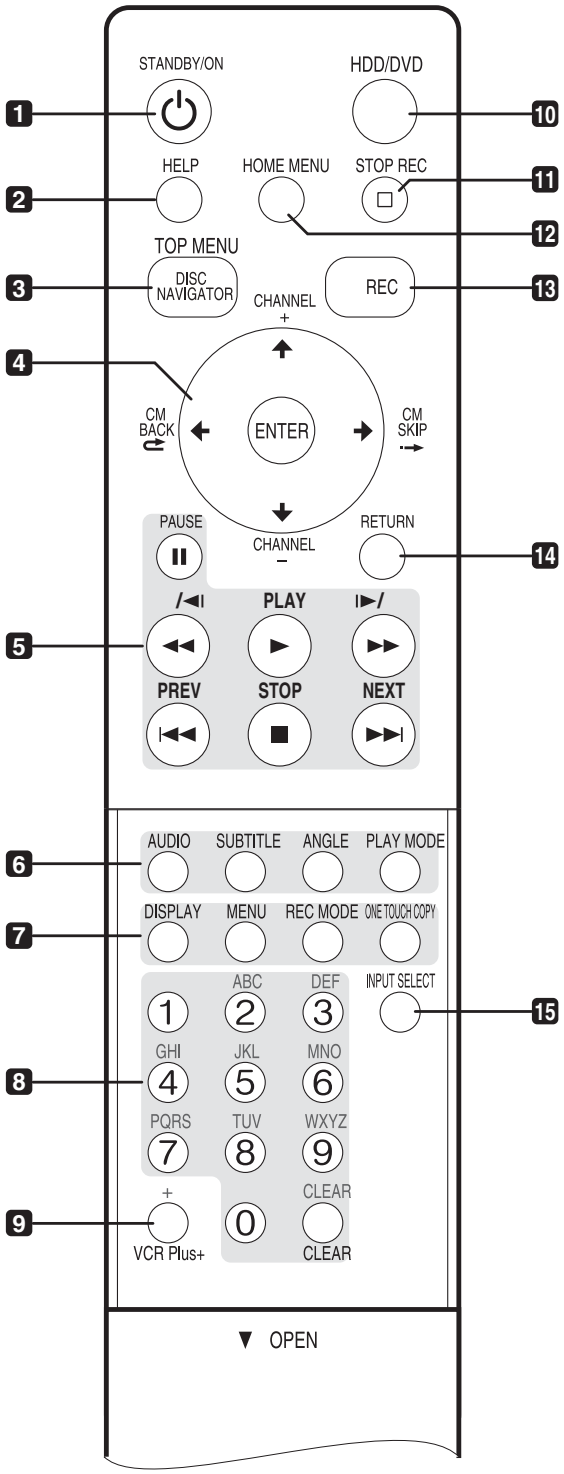
10 PL
Lights when a VR mode disc is loaded and the recorder is in Play List mode.

23
Shows the remote control mode (if nothing is displayed, the remote control mode is 1).

V
Lights when an unfinalized Video mode disc is loaded.

8.4 REMOTE CONTROL

● Remote control



1 ⏻ STANDBY/ON
Press to switch the recorder on/into standby.

2 HELP
Press for help on how to use the current GUI screen.

3 DISC NAVIGATOR / TOP MENU
Press to display the Disc Navigator screen,or the top menu if a DVD-Video or finalized DVD-R/-RW (Video) disc is loaded.

4 ⬆/⬇/⬅/➡ and ENTER
Used to navigate all on-screen displays. Press **ENTER** to select the currently highlighted option.

CM BACK (commercial back)
Press repeatedly to skip progressively backward through the audio or video playing.

CM SKIP (commercial skip)
Press repeatedly to skip progressively forward through the audio or video playing.

CHANNEL +/–
Press to change the channel of the built-in TV tuner.

5 Playback controls
II PAUSE
Press to pause playback or recording.

► PLAY
Press to start playback.

■ STOP
Press to stop playback.

I◄◄ ►►I
Press to skip to the previous or next title/chapter/track/folder; or to display the previous or next menu page.

◄◄ ►►
Press to start reverse or forward scanning. Press again to change the speed.

◄II/◄I I►/II►
While paused, press and hold to start slow-motion playback. Press repeatedly to change the playback speed. While paused, press to advance a single frame in either direction.

6 playback function buttons

AUDIO
Press to change the audio language or channel. (When the recorder is stopped, press to change the tuner audio.)

SUBTITLE
Press to display/change the subtitles included in multilingual DVD-Video discs.

ANGLE
Press to switch camera angles on discs with multi-angle scenes.

PLAY MODE
Press to change the play mode (search, repeat, program play, etc.)

7 DISPLAY
Displays/changes the on-screen information displays.

MENU
Press to display the disc menu if a DVD-Video, finalized DVD-R/-RW or finalized DVD+R/+RW disc is loaded.

REC MODE
Press repeatedly to change the recording mode (picture quality).

ONE TOUCH COPY
Press to start One Touch Copy of the currently playing title to DVD or the HDD.

8 Number buttons, CLEAR
Use the number buttons for track/chapter/title selection; channel selection, and so on. The same buttons can also be used to enter names for titles, discs and so on. Use **CLEAR** to clear an entry and start again.

9 VCR Plus+®
Press then use the number buttons to enter a PlusCode® programming number for timer recording.

10 HDD/DVD
Press to select the hard disk (HDD) or DVD for recording and playback.

11 □ STOP REC
Press to stop recording.

12 HOME MENU
Press to display the Home Menu, from which you can navigate all the functions of the recorder.

13 ● REC
Press to start recording. Press repeatedly to set the recording time in blocks of 30 mins.

14 RETURN
Press to go back one level in the on-screen menu or display.

15 INPUT SELECT
Press to change the input to use for recording.

■ Jigs list

Name	Jig No.	Remarks
Service Remote Control Unit	GGF1381	Adjustment, diagnosis
DVD Test Disc (DVD-Video)	GGV1025	Check of DVD-Video
DVD Recorder Data Disc Type2	———— (*)	Diagnosis (ID data setting)
4P Power Cable	VKP2291	Extension of HDD
Jig for LD Power Adjustment	GGF1559	LD Power Adjustment
FFC Cable (10P)	GGD1477	LD Power Adjustment
CD-ROM Test Disc	GGV1054	LD Power Adjustment
DVD Dual Layer Test Disc	GGV1036	LD Power Adjustment

(*) Be sure to use the latest disc (Type 2).
In April, 2006, the latest disc is GGV1238.

■ Lubricants and Glues list

Name	Lubricants and Glues No.	Remarks
Hanarl	GEM1041	refer to "2.3 FRONT PANEL SECTION"

Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

Position to be cleaned	Cleaning tools
Pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

Position to be cleaned	Cleaning tools
Fans	Cleaning paper : GED-008